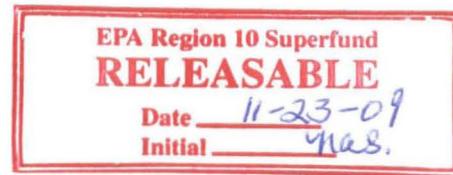


Brix Maritime Company Response to EPA's 104(e) Information Request

Entire response Releasable



## **PROGRESS REPORT – THIRD QUARTER 2005**

**BRIX MARITIME COMPANY  
PORTLAND, OREGON**

**Prepared for  
Brix Maritime Company**

**Prepared by  
Anchor Environmental, L.L.C.  
6650 SW Redwood Lane, Suite 110  
Portland, OR 97224**

**October 14, 2005**



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**October 14, 2005**

**Progress Report – Third Quarter 2005**

**Brix Maritime Company**

**Portland, Oregon**

The material and data in this report were prepared under the supervision and direction  
of the undersigned.



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John J. Renda, R.G.  
Anchor Environmental, L.L.C.

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John Edwards, R.G. C.E.G.  
Anchor Environmental, L.L.C.

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## **1 INTRODUCTION**

This Progress Report was prepared in accordance with Section II(H) of the Oregon Department of Environmental Quality (DEQ) Voluntary Agreement for Remedial Investigation and Source Control Measures (ECSI 2464 No. LQDVC-NWR-02-03). This report covers the work completed during the quarter ending September 30, 2005 for the Brix Maritime site in Portland, Oregon (Figure 1) and is divided into the following subject areas:

- Actions Taken During the Third Quarter
- Actions Scheduled for the Fourth Quarter
- Data Generated in the Third Quarter
- Summaries of Problems and Actions Taken To Resolve Problems

## **2 ACTIONS TAKEN DURING THE THIRD QUARTER**

- Submitted the Second Quarter 2005 progress report to DEQ in July 2005
- Measured water levels at the river staff gauge and in monitoring wells MW-1 through MW-8 on August 2 and September 29, 2005
- Sampled monitoring wells MW-1, -3, -4 on August 2, 2005 (MW-5 was dry)
- Submitted Brix RI Addendum 1 to DEQ on August 16, 2005
- Received DEQ's September 6, 2005 approval of February 2005 RI Work Plan as supplemented by Addendum 1
- Met with DEQ onsite on September 6, 2005 to discuss feasibility of seep sampling
- Emailed to DEQ proposed sampling procedures for seep sampling on September 12 and 14, 2005
- Received approval from DEQ for seep sampling procedures on September 15, 2005
- Collected a seep sample, river sample, monitoring well MW-2 sample and two soil samples at the seep location on September 29, 2005
- Submitted the samples collected on September 29, 2005 to Columbia Analytical Services Inc. for testing

## **3 ACTIONS SCHEDULED FOR THE FOURTH QUARTER**

- Measure water levels and check for free product in monitoring wells MW-1 through MW-8 and the river staff gage in November 2005

- 
- Sample monitoring wells MW-1 through MW-7 in November 2005
  - Prepare and submit the Third Quarter Progress Report (this report) to DEQ
  - Submit to DEQ written comments on the September Interim Final Portland Harbor Joint Source Control Strategy

## 4 DATA GENERATED IN THE THIRD QUARTER

### 4.1 Hydrology Data and Potentiometric Surface Map

Water levels were measured in all onsite monitoring wells and at the river staff gauge on August 2 and September 29, 2005. Water levels and groundwater elevations based on the 1988 North American Vertical Datum (NAVD 88) are presented in Table 1. Free phase petroleum hydrocarbons were detected in monitoring well MW-3 at a thickness of 0.01 feet in August; in September, a sheen was noted on the probe, but was too thin to measure with the interface probe. No free-phase petroleum hydrocarbons were detected in any other of the monitoring wells.

During the water level measurements, the river bank was examined for petroleum hydrocarbon seeps or sheens. No petroleum hydrocarbon seeps or sheens were observed.

A groundwater potentiometric surface map, using the August 2, 2005 measurements, is shown on Figure 2. Consistent with all past monitoring events, the contour pattern indicates that shallow groundwater flows west to east from the upland portion of the site to the river.

### 4.2 Groundwater Sampling

Monitoring wells MW-1, -3, and -4 were sampled on August 2, 2005. Monitoring wells MW-2, MW-6, and MW-7 are sampled semi-annually (in the fall and spring). MW-5 was dry at the time of sampling. MW-8 was installed for the purpose of monitoring for free product and it is not part of the quarterly sampling plan. Field sampling procedures, field parameters, field sampling data sheets, and chain of custody documentation are in Appendix A.

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#### **4.3 Groundwater Analytical Testing**

The groundwater samples, including one duplicate sample, were analyzed for total petroleum hydrocarbons (TPH) as gasoline by NWTPH-Gx; TPH as diesel and heavy oils by NWTPH-Dx; Polycyclic Aromatic Hydrocarbons (PAHs) by U.S. Environmental Protection Agency (USEPA) Method 8270-SIM; Volatile Organic Compounds (VOCs) by USEPA Method 8260. The analytical results are presented in Tables 2 through 6. A copy of the laboratory report is in Appendix B.

#### **4.4 Seep Sampling**

On September 29, 2005, Anchor collected a seep sample at a sand silt interface along the rip-rap slope between monitoring well MW-2 and the tide gage (Figure 2). The seep sample location was agreed to in an onsite meeting with DEQ on September 6, 2005. In conjunction with the seep sampling, several other samples were collected for comparison including a surface water sample from the Willamette; a groundwater sample from monitoring well MW-2; and two soil samples from the seep location (one at the ground surface and one approximately 0.5 feet into the slope). The field sampling data sheets are in Appendix A. Photos showing the collection of the seep sample are in Appendix C. The samples were analyzed for PAHs by U.S. Environmental Protection Agency (USEPA) Method 8270-SIM.

The laboratory analysis is not complete. The sample results will be presented in the fourth quarter progress report.

#### **4.5 Data Validation**

Review of the sampling and laboratory records showed no apparent discrepancies between samples collected in the field and those analyzed in the laboratory. The data are judged to be acceptable for their intended use as qualified. The data validation review of the laboratory records is summarized in Appendix D.

### **5 SUMMARIES OF PROBLEMS AND ACTIONS TAKEN TO RESOLVE PROBLEMS**

No problems were encountered.

## **TABLES**

**Table 1**  
**Hydrology Data**  
**Brix Maritime**  
**Portland, Oregon**

Well	Reference Elevation (Feet NAVD88)	Screen Interval Feet NAVD88	Elevation Top of Perching Layer <sup>2</sup> (Feet NAVD88)	Date (MM/DD/YY)	DTW (feet)	Water above base of screen (Feet)	Water Elevation (Feet NAVD88)	Comments
<b>Monitoring Wells</b>								
MW-1	41.81	35.1 - 20.1	21.16	02/28/03	18.89	2.86	22.92	
MW-1	41.81	35.1 - 20.1	21.16	03/31/03	19.43	2.32	22.38	
MW-1	41.81	35.1 - 20.1	21.16	04/29/03	19.69	2.06	22.12	
MW-1	41.81	35.1 - 20.1	21.16	05/22/03	20.22	1.53	21.59	
MW-1	41.81	35.1 - 20.1	21.16	07/07/03	21.08	0.67	20.73	
MW-1	41.81	35.1 - 20.1	21.16	07/30/03	21.13	0.62	20.68	
MW-1	41.81	35.1 - 20.1	21.16	08/28/03	21.24	0.51	20.57	
MW-1	41.81	35.1 - 20.1	21.16	09/30/03	21.15	0.60	20.66	
MW-1	41.81	35.1 - 20.1	21.16	10/16/03	21.10	0.65	20.71	
MW-1	41.81	35.1 - 20.1	21.16	12/03/03	21.06	0.69	20.75	
MW-1	41.81	35.1 - 20.1	21.16	12/26/03	20.46	1.29	21.35	
MW-1	41.81	35.1 - 20.1	21.16	01/30/04	19.01	2.74	22.80	
MW-1	41.81	35.1 - 20.1	21.16	03/04/04	19.60	2.15	22.21	
MW-1	41.81	35.1 - 20.1	21.16	04/29/04	20.91	0.84	20.90	
MW-1	41.81	35.1 - 20.1	21.16	05/27/04	21.13	0.62	20.68	
MW-1	41.81	35.1 - 20.1	21.16	07/06/04	21.22	0.53	20.59	
MW-1	41.81	35.1 - 20.1	21.16	07/26/04	21.28	0.47	20.53	
MW-1	41.81	35.1 - 20.1	21.16	10/29/04	21.25	0.50	20.56	
MW-1	41.81	35.1 - 20.1	21.16	02/25/05	20.81	0.94	21.00	
MW-1	41.81	35.1 - 20.1	21.16	05/05/05	20.63	1.12	21.18	
MW-1	41.81	35.1 - 20.1	21.16	08/02/05	21.18	0.57	20.63	
MW-1	41.81	35.1 - 20.1	21.16	09/29/05	21.21	0.54	20.60	
MW-2	42.13	32.9 - 17.9	18.98	02/28/03	19.88	4.37	22.25	
MW-2	42.13	32.9 - 17.9	18.98	03/31/03	20.36	3.89	21.77	
MW-2	42.13	32.9 - 17.9	18.98	04/29/03	20.64	3.61	21.49	
MW-2	42.13	32.9 - 17.9	18.98	05/22/03	21.06	3.19	21.07	
MW-2	42.13	32.9 - 17.9	18.98	07/07/03	22.17	2.08	19.96	
MW-2	42.13	32.9 - 17.9	18.98	07/30/03	22.50	1.75	19.63	
MW-2	42.13	32.9 - 17.9	18.98	08/28/03	22.84	1.41	19.29	
MW-2	42.13	32.9 - 17.9	18.98	09/30/03	23.07	1.18	19.06	
MW-2	42.13	32.9 - 17.9	18.98	10/16/03	23.06	1.19	19.07	
MW-2	42.13	32.9 - 17.9	18.98	12/03/03	22.54	1.71	19.59	
MW-2	42.13	32.9 - 17.9	18.98	12/26/03	21.58	2.67	20.55	
MW-2	42.13	32.9 - 17.9	18.98	01/30/04	20.05	4.20	22.08	
MW-2	42.13	32.9 - 17.9	18.98	03/04/04	20.57	3.68	21.56	
MW-2	42.13	32.9 - 17.9	18.98	04/29/04	21.89	2.36	20.24	
MW-2	42.13	32.9 - 17.9	18.98	05/27/04	22.29	1.96	19.84	
MW-2	42.13	32.9 - 17.9	18.98	07/06/04	22.70	1.55	19.43	
MW-2	42.13	32.9 - 17.9	18.98	07/26/04	22.85	1.40	19.28	
MW-2	42.13	32.9 - 17.9	18.98	10/29/04	22.90	1.35	19.23	
MW-2	42.13	32.9 - 17.9	18.98	02/25/05	22.20	2.05	19.93	
MW-2	42.13	32.9 - 17.9	18.98	05/05/05	21.73	2.52	20.40	
MW-2	42.13	32.9 - 17.9	18.98	08/02/05	22.48	1.77	19.65	
MW-2	42.13	32.9 - 17.9	18.98	09/29/05	22.90	1.35	19.23	
MW-3	41.93	32.9 - 17.9	19.71	07/29/02	22.91	1.11	19.02	
MW-3	41.93	32.9 - 17.9	19.71	08/22/02	23.50	0.52	18.43	Oil detected in well, thickness estimated at 0.02 foot
MW-3	41.93	32.9 - 17.9	19.71	09/30/02	23.37	0.65	18.56	Oil detected in well, thickness estimated at 0.02 foot
MW-3	41.93	32.9 - 17.9	19.71	10/30/02	23.68	0.34	18.25	DTP = 23.49 (0.19 foot thick)
MW-3	41.93	32.9 - 17.9	19.71	11/27/02	23.30	0.72	18.63	DTP = 23.16 (0.14 foot thick)
MW-3	41.93	32.9 - 17.9	19.71	12/30/02	21.99	2.03	19.94	Oil noted on probe, product too thin to measure with interface probe
MW-3	41.93	32.9 - 17.9	19.71	02/28/03	19.75	4.27	22.18	Oil noted on probe, product too thin to measure with interface probe
MW-3	41.93	32.9 - 17.9	19.71	03/31/03	20.24	3.78	21.69	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	04/29/03	20.50	3.52	21.43	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	05/22/03	20.94	3.08	20.99	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	07/07/03	22.21	1.81	19.72	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	07/30/03	22.62	1.40	19.31	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	08/28/03	22.95	1.07	18.98	Oil noted on probe, product too thin to measure with interface probe
MW-3	41.93	32.9 - 17.9	19.71	09/30/03	23.15	0.87	18.78	DTP = 23.04 (0.11 foot thick)
MW-3	41.93	32.9 - 17.9	19.71	10/16/03	22.40	1.62	19.53	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	12/03/03	22.21	1.81	19.72	Sheen, product too thin to measure
MW-3	41.93	32.9 - 17.9	19.71	12/26/03	21.44	2.58	20.49	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	01/30/04	19.80	4.22	22.13	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	03/04/04	20.41	3.61	21.52	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	04/29/04	21.82	2.20	20.11	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	05/27/04	22.25	1.77	19.68	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	07/06/04	22.66	1.36	19.27	No oil noted on probe
MW-3	41.93	32.9 - 17.9	19.71	07/26/04	22.91	1.11	19.02	DTP = 22.89 (0.02 foot thick)
MW-3	41.93	32.9 - 17.9	19.71	10/29/04	22.29	1.73	19.64	Oil noted on probe, product too thin to measure with interface probe
MW-3	41.95	32.9 - 17.9	19.71	02/25/05	22.03	2.01	19.92	No oil noted on probe
MW-3	41.95	32.9 - 17.9	19.71	05/05/05	21.55	2.49	20.40	No oil noted on probe
MW-3	41.95	32.9 - 17.9	19.71	08/02/05	22.32	1.72	19.63	DTP = 22.31 (0.01 foot thick)
MW-3	41.95	32.9 - 17.9	19.71	09/29/05	22.37	1.67	19.58	Sheen noted on probe, product too thin to measure with interface probe

**Table 1**  
**Hydrology Data**  
**Brix Maritime**  
**Portland, Oregon**

Well	Reference Elevation (Feet NAVD88)	Screen Interval Feet NAVD88	Elevation Top of Perching Layer <sup>2</sup> (Feet NAVD88)	Date (MM/DD/YY)	DTW (feet)	Water above base of screen (Feet)	Water Elevation (Feet NAVD88)	Comments
MW-4	23.55	19.4 - 9.4	10.90	07/29/02	11.62	2.53	11.93	
MW-4	23.55	19.4 - 9.4	10.90	08/22/02	11.77	2.38	11.78	
MW-4	23.55	19.4 - 9.4	10.90	09/30/02	11.94	2.21	11.61	
MW-4	23.55	19.4 - 9.4	10.90	10/30/02	12.06	2.09	11.49	
MW-4	23.55	19.4 - 9.4	10.90	11/27/02	11.85	2.30	11.70	
MW-4	23.55	19.4 - 9.4	10.90	12/30/02	10.24	3.91	13.31	
MW-4	23.55	19.4 - 9.4	10.90	02/28/03	4.34	9.81	19.21	
MW-4	23.55	19.4 - 9.4	10.90	03/31/03	4.59	9.56	18.96	
MW-4	23.55	19.4 - 9.4	10.90	04/29/03	5.46	8.69	18.09	
MW-4	23.55	19.4 - 9.4	10.90	05/22/03	8.59	5.56	14.96	
MW-4	23.55	19.4 - 9.4	10.90	07/07/03	10.69	3.46	12.86	
MW-4	23.55	19.4 - 9.4	10.90	07/30/03	11.03	3.12	12.52	
MW-4	23.55	19.4 - 9.4	10.90	08/28/03	11.40	2.75	12.15	
MW-4	23.55	19.4 - 9.4	10.90	09/30/03	11.74	2.41	11.81	
MW-4	23.55	19.4 - 9.4	10.90	10/16/03	11.40	2.75	12.15	
MW-4	23.55	19.4 - 9.4	10.90	12/03/03	10.59	3.56	12.96	
MW-4	23.55	19.4 - 9.4	10.90	12/26/03	9.50	4.65	14.05	
MW-4	23.55	19.4 - 9.4	10.90	01/30/04	5.41	8.74	18.14	
MW-4	23.55	19.4 - 9.4	10.90	03/04/04	9.05	5.10	14.50	
MW-4	23.55	19.4 - 9.4	10.90	04/29/04	11.00	3.15	12.55	
MW-4	23.55	19.4 - 9.4	10.90	05/27/04	10.89	3.26	12.66	
MW-4	23.55	19.4 - 9.4	10.90	07/06/04	11.26	2.89	12.29	
MW-4	23.55	19.4 - 9.4	10.90	07/26/04	11.56	2.59	11.99	
MW-4	23.55	19.4 - 9.4	10.90	10/29/04	11.06	3.09	12.49	
MW-4	23.55	19.4 - 9.4	10.90	02/25/05	10.60	3.55	12.95	
MW-4	23.55	19.4 - 9.4	10.90	05/05/05	9.55	4.60	14.00	
MW-4	23.55	19.4 - 9.4	10.90	08/02/05	10.95	3.20	12.60	
MW-4	23.55	19.4 - 9.4	10.90	09/29/05	11.19	2.96	12.36	
MW-5	41.66	34.9 - 19.9	19.31	02/28/03	19.45	2.30	22.21	
MW-5	41.66	34.9 - 19.9	19.31	03/31/03	19.99	1.76	21.67	
MW-5	41.66	34.9 - 19.9	19.31	04/29/03	20.25	1.50	21.41	
MW-5	41.66	34.9 - 19.9	19.31	05/22/03	20.75	1.00	20.91	
MW-5	41.66	34.9 - 19.9	19.31	07/07/03	21.93	-0.18	19.73	Insufficient water to collect sample
MW-5	41.66	34.9 - 19.9	19.31	07/30/03	22.08	-0.33	19.58	dry
MW-5	41.66	34.9 - 19.9	19.31	08/28/03	22.08	-0.33	19.58	dry
MW-5	41.66	34.9 - 19.9	19.31	09/30/03	22.13	-0.38	19.53	dry
MW-5	41.66	34.9 - 19.9	19.31	10/16/03	22.10	-0.35	19.56	Insufficient water to collect sample
MW-5	41.66	34.9 - 19.9	19.31	12/03/03	22.13	-0.38	19.53	dry
MW-5	41.66	34.9 - 19.9	19.31	12/26/03	21.35	0.40	20.31	
MW-5	41.66	34.9 - 19.9	19.31	01/30/04	19.59	2.16	22.07	
MW-5	41.66	34.9 - 19.9	19.31	03/04/04	20.16	1.59	21.50	
MW-5	41.66	34.9 - 19.9	19.31	04/29/04	21.67	0.08	19.99	Insufficient water to collect sample
MW-5	41.66	34.9 - 19.9	19.31	05/27/04	21.99	-0.24	19.67	water level below bottom of screen (dry)
MW-5	41.66	34.9 - 19.9	19.31	07/06/04	21.98	-0.23	19.68	water level below bottom of screen (dry)
MW-5	41.66	34.9 - 19.9	19.31	07/26/04	dry	dry	dry	
MW-5	41.66	34.9 - 19.9	19.31	10/29/04	22.00	-0.25	19.66	water level below bottom of screen (dry)
MW-5	41.66	34.9 - 19.9	19.31	02/25/05	21.85	-0.10	19.81	water level below bottom of screen (dry)
MW-5	41.66	34.9 - 19.9	19.31	05/05/05	21.41	0.34	20.25	
MW-5	41.66	34.9 - 19.9	19.31	08/02/05	22.01	-0.26	19.65	water level below bottom of screen (dry)
MW-5	41.66	34.9 - 19.9	19.31	09/29/05	22.01	-0.26	19.65	water level below bottom of screen (dry)
MW-6	41.21	31.4 - 16.4	20.49	07/07/03	20.26	4.56	20.95	
MW-6	41.21	31.4 - 16.4	20.49	07/30/03	20.57	4.25	20.64	
MW-6	41.21	31.4 - 16.4	20.49	08/28/03	21.02	3.80	20.19	
MW-6	41.21	31.4 - 16.4	20.49	09/30/03	21.02	3.80	20.19	
MW-6	41.21	31.4 - 16.4	20.49	10/16/03	20.93	3.89	20.28	
MW-6	41.21	31.4 - 16.4	20.49	12/03/03	21.53	3.29	19.68	
MW-6	41.21	31.4 - 16.4	20.49	12/26/03	19.24	5.58	21.97	
MW-6	41.21	31.4 - 16.4	20.49	01/30/04	17.70	7.12	23.51	
MW-6	41.21	31.4 - 16.4	20.49	03/04/04	18.16	6.66	23.05	
MW-6	41.21	31.4 - 16.4	20.49	04/29/04	19.66	5.16	21.55	
MW-6	41.21	31.4 - 16.4	20.49	05/27/04	20.17	4.65	21.04	
MW-6	41.21	31.4 - 16.4	20.49	07/06/04	20.71	4.11	20.50	
MW-6	41.21	31.4 - 16.4	20.49	07/26/04	21.23	3.59	19.98	
MW-6	41.21	31.4 - 16.4	20.49	10/29/04	21.48	3.34	19.73	
MW-6	41.21	31.4 - 16.4	20.49	02/25/05	19.78	5.04	21.43	
MW-6	41.21	31.4 - 16.4	20.49	05/05/05	19.19	5.63	22.02	
MW-6	41.21	31.4 - 16.4	20.49	08/02/05	20.57	4.25	20.64	
MW-6	41.21	31.4 - 16.4	20.49	09/29/05	21.25	3.57	19.96	



**Table 1**  
**Hydrology Data**  
**Brix Maritime**  
**Portland, Oregon**

Well	Reference Elevation (Feet NAVD88)	Screen Interval Feet NAVD88	Elevation Top of Perching Layer <sup>2</sup> (Feet NAVD88)	Date (MM/DD/YY)	DTW (feet)	Water above base of screen (Feet)	Water Elevation (Feet NAVD88)	Comments
MW-7	40.95	31.5 - 16.5	15.79	07/07/03	21.21	3.25	19.74	
MW-7	40.95	31.5 - 16.5	15.79	07/30/03	21.76	2.70	19.19	
MW-7	40.95	31.5 - 16.5	15.79	08/28/03	22.32	2.14	18.63	
MW-7	40.95	31.5 - 16.5	15.79	09/30/03	22.67	1.79	18.28	
MW-7	40.95	31.5 - 16.5	15.79	10/16/03	22.72	1.74	18.23	
MW-7	40.95	31.5 - 16.5	15.79	12/03/03	22.90	1.56	18.05	
MW-7	40.95	31.5 - 16.5	15.79	12/26/03	20.32	4.14	20.63	
MW-7	40.95	31.5 - 16.5	15.79	01/30/04	18.26	6.20	22.69	
MW-7	40.95	31.5 - 16.5	15.79	03/04/04	18.96	5.50	21.99	
MW-7	40.95	31.5 - 16.5	15.79	04/29/04	20.49	3.97	20.46	
MW-7	40.95	31.5 - 16.5	15.79	05/27/04	21.10	3.36	19.85	
MW-7	40.95	31.5 - 16.5	15.79	07/06/04	21.98	2.48	18.97	
MW-7	40.95	31.5 - 16.5	15.79	07/26/04	22.40	2.06	18.55	
MW-7	40.95	31.5 - 16.5	15.79	10/29/04	22.99	1.47	17.96	
MW-7	40.95	31.5 - 16.5	15.79	02/25/05	20.80	3.66	20.15	
MW-7	40.95	31.5 - 16.5	15.79	05/05/05	20.20	4.26	20.75	
MW-7	40.95	31.5 - 16.5	15.79	08/02/05	21.60	2.86	19.35	
MW-7	40.95	31.5 - 16.5	15.79	09/29/05	22.47	1.99	18.48	
MW-8	41.73	24.8 - 19.8	20.00	02/25/05	21.15	0.78	20.58	
MW-8	41.73	24.8 - 19.8	20.00	05/05/05	21.81	0.12	19.92	
MW-8	41.73	24.8 - 19.8	20.00	08/02/05	21.19	0.74	20.54	
MW-8	41.73	24.8 - 19.8	20.00	09/29/05	21.33	0.60	20.40	
River Gauge <sup>1</sup>								
River	4.33	NA	NA	10/30/02	2.75	NA	7.08	
River	4.33	NA	NA	11/27/02	3.1	NA	7.43	
River	4.33	NA	NA	12/30/02	7.5	NA	11.83	
River	4.33	NA	NA	02/28/03	6.1	NA	10.43	
River	4.33	NA	NA	03/31/03	8.0	NA	12.33	
River	4.33	NA	NA	04/29/03	8.0	NA	12.33	
River	4.33	NA	NA	05/22/03	6.5	NA	10.83	
River	4.33	NA	NA	07/07/03	4.0	NA	8.33	
River	4.33	NA	NA	07/30/03	3.5	NA	7.83	
River	4.33	NA	NA	08/28/03	3.3	NA	7.63	
River	4.33	NA	NA	09/30/03	2.1	NA	6.43	
River	4.33	NA	NA	10/16/03	2.2	NA	6.53	
River	4.33	NA	NA	12/03/03	3.5	NA	7.83	
River	4.33	NA	NA	12/26/03	6.7	NA	11.03	
River	4.33	NA	NA	01/30/04	11.0	NA	15.33	
River	4.33	NA	NA	03/04/04	5.0	NA	9.33	
River	4.33	NA	NA	04/29/04	4.0	NA	8.33	
River	4.33	NA	NA	05/27/04	6.6	NA	10.93	
River	4.33	NA	NA	07/06/04	5.5	NA	9.83	
River	4.33	NA	NA	07/26/04	2.75	NA	7.08	
River	4.33	NA	NA	10/29/04	3.75	NA	8.08	
River	4.33	NA	NA	02/25/05	4.0	NA	8.33	
River	4.33	NA	NA	05/05/05	5.0	NA	9.33	
River	4.33	NA	NA	08/02/05	4.4	NA	8.73	
River	4.33	NA	NA	08/25/05	3.6	NA	7.93	
River	4.33	NA	NA	09/29/05	1.0	NA	5.33	

Note: DTW = Depth to Water; DTP = Depth to Product; NA = Not Applicable

1 - The river gauge is marked in 1-foot increments, field measurements are estimated to the closest 0.1 foot.

2 - Perching unit identified as Silty Sand in MW-1, MW-2, MW-3, and MW-6; Sandy Silt in MW-8; and Silt in MW-4, MW-5, and MW-7.

**Table 2**  
**Total Petroleum Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Location	Matrix	Date Sampled	Diesel Range Organics	Residual Range Organics	Gasoline Range Organics			
MW-1	Water	07/07/03	0.27	L	0.5	U	1.3	H
MW-1	Water	10/16/03	0.73	L	0.5	U	8.1	H
MW-1	Water	01/30/04	0.60	L	0.5	U	4.0	H
MW-1	Water	04/29/04	0.71	L	0.5	U	5.8	H
MW-1 Duplicate	Water	04/29/04	0.79	L	0.5	U	5.7	H
MW-1	Water	07/26/04	0.92	L	0.5	U	9.3	Y
MW-1 Duplicate	Water	07/26/04	0.93	L	0.5	U	9.3	Y
MW-1	Water	10/29/04	1.10	L	0.5	U	8.8	Y
MW-1	Water	02/25/05	1.40	L	0.5	U	12.0	DY
MW-1 Duplicate	Water	02/25/05	1.30	L	0.5	U	11.0	DY
MW-1	Water	05/05/05	0.88	L	0.54	U	12.0	DY
MW-1 Duplicate	Water	05/05/05	0.85	L	0.52	U	12.0	DY
MW-1	Water	08/02/05	1.00	L	0.52	U	14.0	DY
MW-2	Water	07/07/03	0.25	U	0.5	U	0.05	U
MW-2	Water	10/16/03	0.27	U	0.53	U	0.05	U
MW-2	Water	01/30/04	0.25	U	0.5	U	0.05	U
MW-2	Water	04/29/04	0.25	U	0.5	U	0.05	U
MW-2	Water	07/26/04	0.25	U	0.5	U	0.25	U
MW-2	Water	10/29/04	0.25	U	0.5	U	0.25	U
MW-2	Water	05/05/05	0.27	U	0.53	U	0.25	U
MW-3	Water	07/30/02	3.4	Y	1.6	O		
MW-3	Water	07/07/03	1.9	Y	8.5	O	0.05	U
MW-3	Water	10/16/03	0.92	Y	1.8	O	0.059	Y
MW-3	Water	01/30/04	0.79	Y	0.6	O	0.05	U
MW-3	Water	04/29/04	0.7	Y	0.77	O	0.05	U
MW-3	Water	07/26/04	2.5	Y	8.3	O	0.25	U
MW-3	Water	10/29/04	1.2	Y	3.1	O	0.25	U
MW-3	Water	02/25/05	1.2	Y	1.8	O	0.25	U
MW-3	Water	05/05/05	1.0	Z	1.2	Z	0.25	U
MW-3	Water	08/02/05	1.2	Y	4.0	OJ	0.25	U
MW-3 Duplicate	Water	08/02/05	1.1	Z	1.7	OJ	0.25	U
MW-4	Water	07/29/02	0.26	U	0.52	U		
MW-4	Water	07/07/03	0.25	U	0.52	O	0.05	U
MW-4 Duplicate	Water	07/07/03	0.25	U	0.5	U	0.05	U
MW-4	Water	10/16/03	0.25	U	0.5	U	0.65	Y
MW-4 Duplicate	Water	10/16/03	0.25	U	0.5	U	0.66	Y
MW-4	Water	01/30/04	0.25	U	0.5	U	0.05	U
MW-4	Water	04/29/04	0.25	U	0.5	U	0.05	U
MW-4	Water	07/26/04	0.25	U	0.5	U	0.25	U
MW-4	Water	10/29/04	0.73	Z	1.0	Z	0.25	U
MW-4 Duplicate	Water	10/29/04	0.63	Z	0.96	Z	0.25	U
MW-4	Water	02/25/05	0.25	U	0.50	U	0.25	U
MW-4	Water	05/05/05	0.26	U	0.51	U	0.25	U
MW-4	Water	08/02/05	0.28	U	0.55	U	0.25	U
MW-5	Water	01/30/04	0.62	L	0.5	U	1.4	H
MW-5 Duplicate	Water	01/30/04	0.63	L	0.5	U	1.5	H
MW-5	Water	05/05/05	1.3	L	0.55	U	5.2	Y
MW-6	Water	07/07/03	0.25	U	0.5	U	0.05	U
MW-6	Water	10/16/03	0.27	U	0.53	U	0.05	U
MW-6	Water	01/30/04	0.25	U	0.5	U	0.05	U
MW-6	Water	04/29/04	0.25	U	0.5	U	0.05	U
MW-6	Water	07/26/04	0.25	U	0.5	U	0.25	U
MW-6	Water	10/29/04	0.25	U	0.5	U	0.25	U
MW-6	Water	05/05/05	0.28	U	0.55	U	0.25	U
MW-7	Water	07/07/03	0.25	U	0.5	U	0.05	U
MW-7	Water	10/16/03	0.27	U	0.53	U	0.05	U
MW-7	Water	01/30/04	0.25	U	0.5	U	0.05	U
MW-7	Water	04/29/04	0.25	U	0.5	U	0.05	U
MW-7	Water	07/26/04	0.25	U	0.5	U	0.25	U
MW-7	Water	10/29/04	0.25	U	0.5	U	0.25	U
MW-7	Water	05/05/05	0.27	U	0.54	U	0.25	U
MW-8	Water	02/25/05	1.0	Y	1.3	O	0.25	U

Notes: Water concentrations are in mg/L.

ft bgs = feet below ground surface.

D = The reported result is from a dilution.

U = Not detected at method reporting limit.

O = The fingerprint resembles oil, but does not match the calibration standard.

L = The fingerprint resembles a petroleum product, but the elution pattern indicates the presence of lighter weight constituents than the calibration standard.

H = The fingerprint resembles a petroleum product, but the elution pattern indicates the presence of heavier weight constituents than the calibration standard.

Y = The fingerprint resembles a petroleum product in the correct carbon range, but the elution pattern does not match the calibration standard.

Z = The chromatic fingerprint does not resemble a petroleum product.

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1 Dup	MW-1	MW-1 Dup	MW-1	MW-1	MW-1 Dup	MW-1	MW-1 Dup	MW-1	MW-1 Dup	MW-1		
Matrix	Water	Water																
Units	µg/L	µg/L																
Date Sampled	02/28/03	07/07/03	10/16/03	01/30/04	04/29/04	04/29/04	07/26/04	07/26/04	10/29/04	02/25/05	02/25/05	05/05/05	05/05/05	05/05/05	08/02/05			
<b>LPAHs</b>																		
Naphthalene	23	D	23	D	160	D	110	D	170	D	150	D	170	D	160	D	180	D
Acenaphthylene	0.19		0.02	U	0.02	U	0.15	UB	0.02	U	0.019	U	0.019	U	0.020	Ui	0.072	Ui
Acenaphthene	0.43		0.38		0.34		0.17		0.30		0.23		0.34		0.33		0.31	0.32
Dibenzofuran	0.12		0.067		0.085		0.032		0.062		0.057		0.073		0.074		0.075	0.084
Fluorene	0.36		0.27		0.24		0.11		0.19		0.14		0.23		0.24		0.25	0.26
Phenanthrene	1.8		0.56		0.42		0.16		0.34		0.27		0.36		0.32		0.34	0.35
Anthracene	0.53		0.11		0.065		0.073		0.079		0.057		0.068		0.067		0.061	0.062
2-Methylnaphthalene	9.0		7.9		42.0		40.0		46.0		40.0		51.0		49.0		46	D
Total LPAH	35.43		32.29		203.15		150.55		216.97		190.75		222.07		220.07		203.04	
<b>HPAHs</b>																		
Fluoranthene	4.3		0.5		0.3		0.39		0.33		0.24		0.31		0.33		0.21	0.27
Pyrene	13	D	1.2		0.9		1.6		0.76		0.57		0.80		0.85		0.60	0.50
Benz(a)anthracene	2.1		0.22		0.16		0.20		0.12		0.084		0.13		0.130		0.096	0.11
Chrysene	2.7		0.27		0.24		0.24		0.16		0.11		0.15		0.15		0.12	0.14
Benzo(b)fluoranthene	1.4		0.088		0.073		0.047		0.049		0.029		0.044		0.041		0.084	0.038
Benzo(k)fluoranthene	1.1		0.098		0.096		0.053		0.061		0.036		0.047		0.043		0.082	0.034
Benzo(a)pyrene	2.0		0.11		0.097		0.064		0.066		0.038		0.056		0.052		0.110	0.046
Indeno(1,2,3-cd)pyrene	1.5		0.023		0.036		0.02	U	0.02	U	0.02	U	0.019	U	0.044		0.020	U
Dibenz(a,h)anthracene	0.17		0.02	U	0.02	U	0.02	U	0.02	U	0.019	U	0.019	U	0.020	U	0.020	U
Benzo(g,h,i)perylene	1.5		0.028		0.043		0.02	U	0.021		0.20	U	0.019	U	0.055		0.020	U
Total HPAHs	29.77		2.53		1.98		2.59		1.57		1.11		1.54		1.60		1.47	1.09
NOTE: µg/L = micrograms per liter or parts per billion.																		
B = detected in method blank at significant concentration.																		
D = the reported result is from a dilution.																		
J = estimated concentration.																		
U = not detected at or above the indicated method reporting limit.																		
i = the MRL/MDL has been elevated due to a chromatographic interference.																		

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-2							
Matrix	Water							
Units	µg/L							
Date Sampled	02/28/03	07/07/03	10/16/03	01/30/04	04/29/04	07/26/04	10/29/04	05/05/05
<b>LPAHs</b>								
Naphthalene	0.082	0.02	U	0.023	0.037	0.023	0.18	0.026
Acenaphthylene	0.023	0.02	U	0.022	U	0.110	UB	0.020
Acenaphthene	0.02	U	0.02	U	0.022	U	0.020	U
Dibenzofuran	0.02	U	0.02	U	0.022	U	0.020	U
Fluorene	0.02	U	0.02	U	0.022	U	0.020	U
Phenanthrene	0.15	0.02	U	0.031	0.020	U	0.31	0.026
Anthracene	0.032	0.02	U	0.022	U	0.034	0.036	0.020
2-Methylnaphthalene	0.02	U	0.02	U	0.022	U	0.022	U
Total LPAH	0.29			0.05	0.09	0.06	0.81	0.11
<b>HPAHs</b>								
Fluoranthene	0.29	0.02	U	0.070	0.022	0.02	U	0.62
Pyrene	0.42	0.02	U	0.091	0.020	0.02	U	0.87
Benz(a)anthracene	0.11	0.02	U	0.023	0.020	0.02	U	0.31
Chrysene	0.17	0.02	U	0.042	0.02	U	0.02	0.48
Benzo(b)fluoranthene	0.14	0.02	U	0.036	0.020	0.02	U	0.48
Benzo(k)fluoranthene	0.13	0.02	U	0.035	0.023	0.02	U	0.42
Benzo(a)pyrene	0.19	0.02	U	0.022	U	0.035	0.02	U
Indeno(1,2,3-cd)pyrene	0.20	0.02	U	0.073	0.022	0.02	U	0.88
Dibenz(a,h)anthracene	0.02	U	0.02	U	0.022	U	0.020	U
Benzo(g,h,i)perylene	0.22	0.02	U	0.090	0.020	0.02	U	1.10
Total HPAHs	1.87			0.46	0.18	0.02	U	0.18
NOTE: µg/L = micrograms per liter or parts per billion.								
B = detected in method blank at significant concentration.								
D = the reported result is from a dilution.								
J = estimated concentration.								
U = not detected at or above the indicated method reporting limit.								
i = the MRL/MDL has been elevated due to a chromatographic interference.								

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-3											
Matrix	Water											
Units	µg/L											
Date Sampled	07/30/02	02/28/03	07/07/03	10/16/03	01/30/04	04/29/04	07/26/04	10/29/04	02/25/05	05/05/05	08/02/05	08/02/05
LPAHs												
Naphthalene	0.36	0.75	0.34	0.34	0.11	0.35	0.28	D	0.040	0.17	0.082	0.086
Acenaphthylene	0.02	U	0.22	0.02	U	0.14	UB	0.02	U	0.38	0.022	0.020
Acenaphthene	0.26	1.3	0.16	0.21	0.04	0.13	0.89	D	0.088	0.12	0.078	0.110
Dibenzofuran	0.025	0.11	0.02	U	0.021	0.020	U	0.035	0.19	U	0.02	0.022
Fluorene	0.09	1.0	0.1	0.11	0.037	0.082	0.84	D	0.039	0.063	0.054	0.071
Phenanthrene	0.11	2.9	0.2	0.14	0.06	0.12	2.3	D	0.02	U	0.072	0.068
Anthracene	0.02	U	0.55	0.039	0.022	0.032	0.034	D	0.02	U	0.029	0.021
2-Methylnaphthalene	0.28	1.8	0.34	0.31	0.15	0.34	1.20	D	0.024	0.22	0.22	0.17
Total LPAH	1.13	8.63	1.18	1.13	0.43	1.09	6.85	0.25	0.72	0.54	0.61	0.55
HPAHs												
Fluoranthene	0.056	4.9	0.22	0.077	0.075	0.080	5.8	D	0.050	0.060	0.058	0.180
Pyrene	0.058	7.6	D	0.22	0.082	0.090	0.079	7.2	D	0.057	0.056	0.060
Benz(a)anthracene	0.02	U	2.1	D	0.06	0.02	U	0.022	0.02	U	0.020	U
Chrysene	0.02	U	2.3	D	0.071	0.02	U	0.023	0.02	U	0.020	U
Benzo(b)fluoranthene	0.022	1.8	D	0.038	0.02	U	0.02	U	0.02	U	0.020	U
Benzo(k)fluoranthene	0.02	U	1.7	D	0.065	0.02	U	0.02	U	0.020	U	0.020
Benzo(a)pyrene	0.02	U	2.3	D	0.053	0.02	U	0.036	0.02	U	3.0	D
Indeno(1,2,3-cd)pyrene	0.02	U	1.5	D	0.041	0.02	U	0.02	U	0.020	U	0.020
Dibenz(a,h)anthracene	0.02	U	0.20	U	0.20	U	0.02	U	0.02	U	0.020	U
Benzo(g,h,i)perylene	0.02	U	1.9	D	0.039	0.02	U	0.02	U	0.020	U	0.055
Total HPAHs	0.14	26.10	0.80	0.16	0.27	0.16	22.80	0.11	0.12	0.12	0.77	0.12
NOTE: µg/L = micrograms per liter or parts per billion.												
B = detected in method blank at significant concentration.												
D = the reported result is from a dilution.												
J = estimated concentration.												
U = not detected at or above the indicated method reporting limit.												
i = the MRL/MDL has been elevated due to a chromatographic interference.												

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-4	MW-4	MW-4	MW-4 Dup	MW-4	MW-4 Dup	MW-4	MW-4	MW-4	MW-4	MW-4 Dup	MW-4	MW-4	MW-4	MW-4							
Matrix	Water	Water																				
Units	µg/L	µg/L																				
Date Sampled	07/29/02	02/28/03	07/07/03	07/07/03	10/16/03	10/16/03	01/30/04	04/29/04	07/26/04	10/29/04	10/29/04	10/25/05	05/05/05	08/02/05								
<b>LPAHs</b>																						
Naphthalene	0.039	18	D	0.16	0.12	0.11	0.12	0.074	0.093	0.024	0.054	0.047	0.020	U	0.020	U	0.074					
Acenaphthylene	0.02	U	0.02	U	0.02	U	0.02	U	0.053	UB	0.02	U	0.019	U	0.027	0.023	0.020	U	0.020	U		
Acenaphthene	0.51	0.60		0.11	0.11	0.36	0.40	0.16	0.061	0.096	0.860	1.100	0.11	0.046		0.020	U	0.020	U			
Dibenzofuran	0.02	U	0.019	U	0.020	0.020	U	0.020	U													
Fluorene	0.02	U	0.019	U	0.020	0.020	U	0.020	U													
Phenanthrene	0.043	0.02	U	0.019	U	0.880	Ui	1.100	Ui	0.020	U	0.020	U									
Anthracene	0.02	U	0.019	U	0.024	0.030	0.020	U	0.020	U												
2-Methylnaphthalene	0.02	U	0.80	0.02	U	0.019	U	0.020	U	0.020	U	0.038										
Total LPAH	0.59	19.40		0.27	0.23	0.47	0.52	0.23	0.15	0.12	0.97	1.22	0.11	0.05	0.11							
<b>HPAHs</b>																						
Fluoranthene	0.033	0.024		0.02	U	0.02	U	0.02	U	0.02	U	0.019	U	0.020	0.020	U	0.020	U	0.020	U		
Pyrene	0.046	0.055		0.021		0.02	U	0.02	0.024		0.02	U	0.02	U	0.019	U	0.038	0.029	0.020	U	0.020	U
Benz(a)anthracene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	U												
Chrysene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	U												
Benzo(b)fluoranthene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	U												
Benzo(k)fluoranthene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	U												
Benzo(a)pyrene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	U												
Indeno(1,2,3-cd)pyrene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	UJ												
Dibenz(a,h)anthracene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	UJ												
Benzo(g,h,i)perylene	0.02	U	0.019	U	0.020	U	0.020	U	0.020	UJ												
Total HPAHs	0.08	0.08		0.021			0.024						0.06	0.03								
NOTE: µg/L = micrograms per liter or parts per billion.																						
B = detected in method blank at significant concentration.																						
D = the reported result is from a dilution.																						
J = estimated concentration.																						
U = not detected at or above the indicated method reporting limit.																						
i = the MRL/MDL has been elevated due to a chromatographic interference.																						

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-5	MW-5 dup	MW-5	MW-5 dup	MW-5	MW-6						
Matrix	Water											
Units	µg/L											
Date Sampled	02/28/03	02/28/03	01/30/04	01/30/04	05/05/05	07/07/03	10/16/03	01/30/04	04/29/04	07/26/04	10/29/04	05/05/05
<b>LPAHs</b>												
Naphthalene	19	D	17	D	2.9	2.1	5.3	D	0.02	U	0.02	U
Acenaphthylene	0.10		0.40		0.02	U	0.71	Ui	0.02	U	0.042	0.02
Acenaphthene	1.3		1.3		0.6	0.5	2.1		0.02	U	0.02	U
Dibenzofuran	0.2		0.19		0.081	0.057	0.66		0.02	U	0.02	U
Fluorene	1.2		1.3		0.48	0.32	3.4		0.02	U	0.02	U
Phenanthrene	2.3		3.1		1.1	0.8	7.3		0.02	U	0.025	0.02
Anthracene	0.55		0.93		0.34	0.24	1.0		0.02	U	0.02	U
2-Methylnaphthalene	31	D	31	D	1.5	1.1	1.8	D	0.02	U	0.02	U
Total LPAH	55.64		55.22		7.02	5.02	21.56		0.07			0.11
<b>HPAHs</b>												
Fluoranthene	3.1	J	6.5	J	1.5	1.1	2.2		0.02	U	0.02	U
Pyrene	4.3	J	9.1	J	1.8	1.4	2.0		0.02	U	0.02	U
Benz(a)anthracene	0.72	J	2.80	J	0.18	0.14	0.099		0.02	U	0.02	U
Chrysene	0.96	J	3.4	J	0.22	0.17	0.15		0.02	U	0.02	U
Benzo(b)fluoranthene	0.44	J	2.2	J	0.046	0.035	0.021		0.02	U	0.02	U
Benzo(k)fluoranthene	0.42	J	1.9	J	0.046	0.041	0.021		0.02	U	0.02	U
Benzo(a)pyrene	0.65	J	3.6	J	0.061	0.050	0.028		0.02	U	0.02	U
Indeno(1,2,3-cd)pyrene	0.49	J	2.5	J	0.03	0.022	0.022		0.02	U	0.02	U
Dibenz(a,h)anthracene	0.044	J	0.27	J	0.02	U	0.020	U	0.02	U	0.02	U
Benzo(g,h,i)perylene	0.52	J	2.7	J	0.029	0.024	0.023		0.02	U	0.02	U
Total HPAHs	11.64		34.97		3.91	3.00	4.56				0.02	
NOTE: µg/L = micrograms per liter or parts per billion.												
B = detected in method blank at significant concentration.												
D = the reported result is from a dilution.												
J = estimated concentration.												
U = not detected at or above the indicated method reporting limit.												
i = the MRL/MDL has been elevated due to a chromatographic interference.												

**TABLE 3**  
**Polycyclic Aromatic Hydrocarbons**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	MW-7	MW-8						
Matrix	Water							
Units	µg/L							
Date Sampled	07/07/03	10/16/03	01/30/04	04/29/04	07/26/04	10/29/04	05/05/05	02/25/05
<b>LPAHs</b>								
Naphthalene	0.02	U	0.02	U	0.02	U	0.093	0.019
Acenaphthylene	0.02	U	0.02	U	0.02	U	0.019	U
Acenaphthene	0.02	U	0.02	U	0.02	U	0.019	U
Dibenzofuran	0.02	U	0.02	U	0.02	U	0.019	U
Fluorene	0.02	U	0.02	U	0.02	U	0.019	U
Phenanthrene	0.02	U	0.02	U	0.02	U	0.019	U
Anthracene	0.02	U	0.02	U	0.02	U	0.019	U
2-Methylnaphthalene	0.02	U	0.02	U	0.02	U	0.04	0.019
Total LPAH							0.13	0.041
<b>HPAHs</b>								
Fluoranthene	0.02	U	0.02	U	0.02	U	0.019	U
Pyrene	0.02	U	0.02	U	0.02	U	0.019	U
Benz(a)anthracene	0.02	U	0.02	U	0.02	U	0.019	U
Chrysene	0.02	U	0.02	U	0.02	U	0.019	U
Benzo(b)fluoranthene	0.02	U	0.02	U	0.02	U	0.019	U
Benzo(k)fluoranthene	0.02	U	0.02	U	0.02	U	0.019	U
Benzo(a)pyrene	0.02	U	0.02	U	0.02	U	0.019	U
Indeno(1,2,3-cd)pyrene	0.02	U	0.02	U	0.02	U	0.019	U
Dibenz(a,h)anthracene	0.02	U	0.02	U	0.02	U	0.019	U
Benzo(g,h,i)perylene	0.02	U	0.02	U	0.02	U	0.019	U
Total HPAHs							0.16	0.020
NOTE: µg/L = micrograms per liter or parts per billion. B = detected in method blank at significant concentration. D = the reported result is from a dilution. J = estimated concentration. U = not detected at or above the indicated method reporting limit. i = the MRL/MDL has been elevated due to a chromatographic interference.								

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	Matrix	Date Sampled	Dichlorodifluoromethane	Chloromethane	Vinyl Chloride	Bromomethane	Chloroethane	Trichlorofluoromethane	Acetone	1,1-Dichloroethene	Methyl tert-Butyl Ether	Carbon Disulfide	Methylene Chloride	trans-1,2-dichloroethene	1,1-Dichloroethane	2-Butanone	2,2-Dichloropropane	cis-1,2-dichloroethene	Chloroform	Bromochloromethane	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	
MW-1	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-1	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-1	Water	10/16/03	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-1	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-1	Water	04/29/04	1 U	1 U	1 U	1 U	1 U	1 U	40 U	1 U	1 U	1 U	4 U	1 U	1 U	40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-1 Dup	Water	04/29/04	1 U	1 U	1 U	1 U	1 U	1 U	40 U	1 U	1 U	1 U	4 U	1 U	1 U	40 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-1	Water	07/26/04	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
MW-1 Dup	Water	07/26/04	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
MW-1	Water	10/29/04	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
MW-1	Water	02/25/05	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-1	Water	05/05/05	2 U	2 U	2 U	2 U	2 U	2 U	80 U	2 U	2 U	2 U	8 U	2 U	2 U	80 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
MW-1 Dup	Water	05/05/05	2 U	2 U	2 U	2 U	2 U	2 U	80 U	2 U	2 U	2 U	8 U	2 U	2 U	80 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
MW-1	Water	08/02/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	07/30/02	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	02/25/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3 Dup	Water	08/02/05	0.5 U	0.5 U	0.5 U	0.5 U	0																	

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	Matrix	Date Sampled	1,2-Dichloroethane	Benzene	Trichloroethene	1,2-Dichloropropane	Bromodichloromethane	Dibromomethane	2-Hexanone	cis-1,3-Dichloropropene	Toluene	trans 1,3-Dichloropropene	1,1,2-Trichloroethane	4-Methyl-2-pentanone	1,3-Dichloropropane	Tetrachloroethene	Dibromochloromethane	1,2-Dibromoethane	Chlorobenzene	1,1,2-Tetrachloroethane	Ethylbenzene	m,p-Xylenes	o-Xylene	Styrene	Bromoform	
MW-1	Water	02/28/03	0.5 U	5.7	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.71	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	37	50	12	0.5 U	0.5 U	
MW-1	Water	07/07/03	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	1.1	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	11	18	2	0.5 U	0.5 U	
MW-1	Water	10/16/03	2.5 U	32 D	2.5 U	2.5 U	2.5 U	2.5 U	100 U	2.5 U	13 D	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	270 D	360 D	110 D	2.5 U	2.5 U	
MW-1	Water	01/30/04	0.5 U	4.1	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.96	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	78 D	120	31	0.5 U	0.5 U	
MW-1	Water	04/29/04	1 U	5.3 D	1 U	1 U	1 U	1 U	1 U	40 U	1 U	2.1 D	1 U	1 U	40 U	1 U	1 U	1 U	4 U	1 U	1 U	120 D	160 D	46 D	1 U	1 U
MW-1 Dup	Water	04/29/04	1 U	4.7 D	1 U	1 U	1 U	1 U	1 U	40 U	1 U	1.9 D	1 U	1 U	40 U	1 U	1 U	1 U	4 U	1 U	1 U	110 D	150 D	42 D	1 U	1 U
MW-1	Water	07/26/04	1.3 U	4.0 D	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	93 D	120 D	29 D	1.3 U	1.3 U	
MW-1 Dup	Water	07/26/04	1.3 U	3.9 D	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	89 D	110 D	28 D	1.3 U	1.3 U	
MW-1	Water	10/29/04	1.3 U	4.0 D	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	1.3 U	50 U	1.3 U	1.3 U	1.3 U	5 U	1.3 U	1.3 U	82 D	100 D	12 D	1.3 U	1.3 U	
MW-1	Water	02/25/05	2.5 U	31 D	2.5 U	2.5 U	2.5 U	2.5 U	100 U	2.5 U	2.7	2.5 U	2.5 U	100 U	2.5 U	2.5 U	2.5 U	10 U	2.5 U	2.5 U	210 D	220 D	26 D	2.5 U	2.5 U	
MW-1	Water	05/05/05	2 U	16 D	2 U	2 U	2 U	2 U	2 U	80 U	2 U	2.2 D	2 U	2 U	80 U	2 U	2 U	2 U	8 U	2 U	2 U	170 D	170 D	19 D	2 U	2 U
MW-1 Dup	Water	05/05/05	2 U	14 D	2 U	2 U	2 U	2 U	2 U	80 U	2 U	2.1 D	2 U	2 U	80 U	2 U	2 U	2 U	8 U	2 U	2 U	160 D	160 D	18 D	2 U	2 U
MW-1	Water	08/02/05	0.5 U	17	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	1.9	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	170 D	180 D	20	0.5 U	0.5 U	
MW-2	Water	02/28/03	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	07/07/03	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	10/16/03	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.86	0.5 U	0.5 U	0.5 U
MW-2	Water	01/30/04	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	04/29/04	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	07/26/04	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	10/29/04	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-2	Water	05/05/05	0.5 U	0.50	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-3	Water	07/30/02	0.5 U	0.73	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	14	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.51	3.5	2	0.5 U	0.5 U	
MW-3	Water	02/28/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.63	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	1.2	0.5 U	0.5 U
MW-3	Water	07/07/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.8	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.2	1.1	0.5 U	0.5 U
MW-3	Water	10/16/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	1.9	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.51	2.5	1.5	0.5 U	0.5 U
MW-3	Water	01/30/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.63	0.73	0.5 U	0.5 U
MW-3	Water	04/29/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.20	1.1	0.5 U	0.5 U
MW-3	Water	07/26/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.98	0.98	0.5 U	0.5 U
MW-3	Water	10/29/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.10	1.0	0.5 U	0.5 U
MW-3	Water	02/25/05	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.30	1.0	0.5 U	0.5 U
MW-3	Water	05/05/05	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.50	1.2	0.5 U	0.5 U
MW-3 Dup	Water	08/02/05	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	1.30	1.1	0.5 U	0.5 U
MW-4	Water	07/29/02	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-4	Water	02/28/03	0.5 U	0.76	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	2.3	1.4	1.2	0.5 U	0.5 U	
MW-4	Water	07/07/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-4 Dup	Water	07/07/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-4	Water	10/16/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.93	0.5 U	0.5 U	0.5 U
MW-4 Dup	Water	10/16/03	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.94	0.5 U	0.5 U	0.5 U
MW-4	Water	01/30/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-4	Water	04/29/04	0.5 U	0.5	U	0.5 U	0.5 U	0.5 U	0.5 U	20																

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	Matrix	Date Sampled	Isopropylbenzene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Bromobenzene	n-Propylbenzene	2-Chlorotoluene	4-Chlorotoluene	1,3,5-Trimethylbenzene	tert-Butylbenzene	1,2,4,4-Trimethylbenzene	sec-Butylbenzene	1,3-Dichlorobenzene	4-Isopropyltoluene	1,4-Dichlorobenzene	n-Butylbenzene	1,2-Dichlorobenzene	1,2,4-Trichlorobenzene	1,2,3-Trichlorobenzene	Naphthalene	Hexachlorobutadiene	
MW-1	Water	02/28/03	19	0.5 U	0.5 U	0.5 U	65 D	2 U	2 U	26	2 U	140 D	10	0.5 U	2 U	0.5 U	21	0.5 U	0.5 U	2 U	2 U	31	2 U
MW-1	Water	07/07/03	31	0.5 U	0.5 U	0.5 U	64 D	2 U	2 U	9.3	2 U	46	8.2	0.5 U	2 U	0.5 U	14	0.5 U	0.5 U	2 U	2 U	22	2 U
MW-1	Water	10/16/03	75 D	2.5 U	2.5 U	10 U	250 D	10 U	10 U	280 D	10 U	1200 D	28	2.5 U	10 U	2.5 U	150	Ui	2.5 U	10 U	10 U	460 D	10 U
MW-1	Water	01/30/04	36	0.5 U	0.5 U	0.5 U	140 D	2 U	2 U	100 D	2 U	510 D	17	0.5 U	2 U	0.5 U	46	0.5 U	0.5 U	2 U	2 U	210 D	2 U
MW-1	Water	04/29/04	54 D	1 U	1 U	1 U	150 D	4 U	4 U	150 D	4 U	590 D	20	1 U	4 U	1 U	43	D	1 U	1 U	4 U	4 U	250 D
MW-1 Dup	Water	04/29/04	52 D	1 U	1 U	1 U	150 D	4 U	4 U	140 D	4 U	570 D	18	D	1 U	4 U	39	D	1 U	1 U	4 U	4 U	260 D
	Water	07/26/04	47 D	1.3 U	1.3 U	1.3 U	160 D	5 U	5 U	130 D	5 U	610 D	18	D	1.3 U	5 U	40	D	1.3 U	1.3 U	5 U	5 U	270 JD
MW-1 Dup	Water	07/26/04	46 D	1.3 U	1.3 U	1.3 U	160 D	5 U	5 U	120 D	5 U	640 D	18	D	1.3 U	5 U	40	D	1.3 U	1.3 U	5 U	5 U	280 JD
MW-1	Water	10/29/04	45 D	1.3 U	1.3 U	1.3 U	140 D	5 U	5 U	110 D	5 U	560 D	16	D	1.3 U	5 U	39	D	1.3 U	1.3 U	5 U	5 U	230 D
MW-1	Water	02/25/05	89 D	2.5 U	2.5 U	2.5 U	350 D	10 U	10 U	160 D	10 U	870 D	39	D	2.5 U	10 U	90	D	2.5 U	2.5 U	10 U	10 U	470 D
MW-1	Water	05/05/05	87 D	2 U	2 U	8 U	260 D	8 U	8 U	100 D	8 U	530 D	32	D	2 U	8 U	140	Ui	2 U	8 U	8 U	8 U	280 D
MW-1 Dup	Water	05/05/05	88 D	2 U	2 U	8 U	250 D	8 U	8 U	96 D	8 U	490 D	31	D	2 U	8 U	140	Ui	2 U	8 U	8 U	8 U	250 D
	Water	08/02/05	69 D	0.5 U	1.1	2 U	220 D	2 U	2 U	140 D	2 U	590 D	28	D	2 U	3.2	0.5 U	62	D	0.5 U	2 U	2 U	330 D
MW-2	Water	02/28/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	10/16/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	01/30/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	04/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	07/26/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	10/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-2	Water	05/05/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	07/30/02	0.5 U	0.5 U	0.5 U	0.5 U	2.2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	02/28/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	10/16/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	01/30/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	04/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	07/26/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	10/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	02/25/05	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3	Water	05/05/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-3 Dup	Water	08/02/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	07/29/02	2 U	0.5 U	0.5 U	0.5 U	2.3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	02/28/03	29	0.5 U	0.5 U	0.5 U	35	2 U	2 U	2.2	2 U	3.8	2 U	0.5 U	2 U	0.5 U	3.1	0.5 U	0.5 U	2 U	2 U	45	2 U
MW-4	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4 Dup	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
	Water	10/16/03	7.1	0.5 U	0.5 U	0.5 U	5.5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	4.4	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-4 Dup	Water	10/16/03	7.5	0.5 U	0.5 U	0.5 U	6.3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	4.8	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-4	Water	01/30/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	04/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	07/26/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	10/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4 Dup	Water	02/25/05	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
	Water	05/05/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U
MW-4	Water	08/02/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	2 U

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	Matrix	Date Sampled	Dichlorodifluoromethane	Chloromethane	Vinyl Chloride	Bromomethane	Chloroethane	Trichlorofluoromethane	Acetone	1,1-Dichloroethene	Methyl tert-Butyl Ether	Carbon Disulfide	1,1,2-dichloroethene	1,1-Dichloroethane	2-Butanone	2,2-Dichloropropane	cis-1,2-dichloroethene	Chloroform	Bromochloromethane	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride
MW-5	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-5 Dup	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-5	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-5 Dup	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 UJ	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-5	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW-8	Water	02/25/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NOTE: Water concentrations are in µg/L. Soil concentrations are in µg/kg. U = not detected at or above the indicated method reporting limit. J = estimated concentration.  
D = the reported result is from a dilution. i = the MRL/MDL has been elevated due to a chromatographic interference.

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

Sample Designation	Matrix	Date Sampled	1,2-Dichloroethane	Benzene	Trichloroethene	1,2-Dichloropropane	Bromodichloromethane	Dibromomethane	2-Hexanone	cis-1,3-Dichloropropene	Toluene	trans 1,3-Dichloropropene	1,1,2-Trichloroethane	4-Methyl-2-pentanone	1,3-Dichloropropane	Tetrachloroethene	Dibromochloromethane	1,2-Dibromoethane	Chlorobenzene	1,1,1,2-Tetrachloroethane	Ethylbenzene	m,p-Xylenes	o-Xylene	Styrene	Bromoform	
MW-5	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	15	12	0.97	0.5 U	0.5 U	
MW-5 Dup	Water	02/28/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	16	14	1.10	0.5 U	0.5 U	
MW-5	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	1.8	0.5 U	0.5 U	0.5 U	0.5 U	
MW-5 Dup	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	2.0	0.5 U	0.5 U	0.5 U	0.5 U	
MW-5	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	17	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.74	0.5 U	0.5 U	0.5 U	0.5 U
MW-6	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-6	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	07/07/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	10/16/03	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.82	0.5 U	0.5 U	0.5 U	0.5 U
MW-7	Water	01/30/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	04/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	07/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	10/29/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-7	Water	05/05/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
MW-8	Water	02/25/05	0.5 U	0.54	0.5 U	0.5 U	0.5 U	0.5 U	20 U	0.5 U	5.8	0.5 U	0.5 U	20 U	0.5 U	0.5 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.86	0.5 U	0.5 U	0.5 U

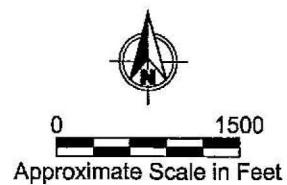
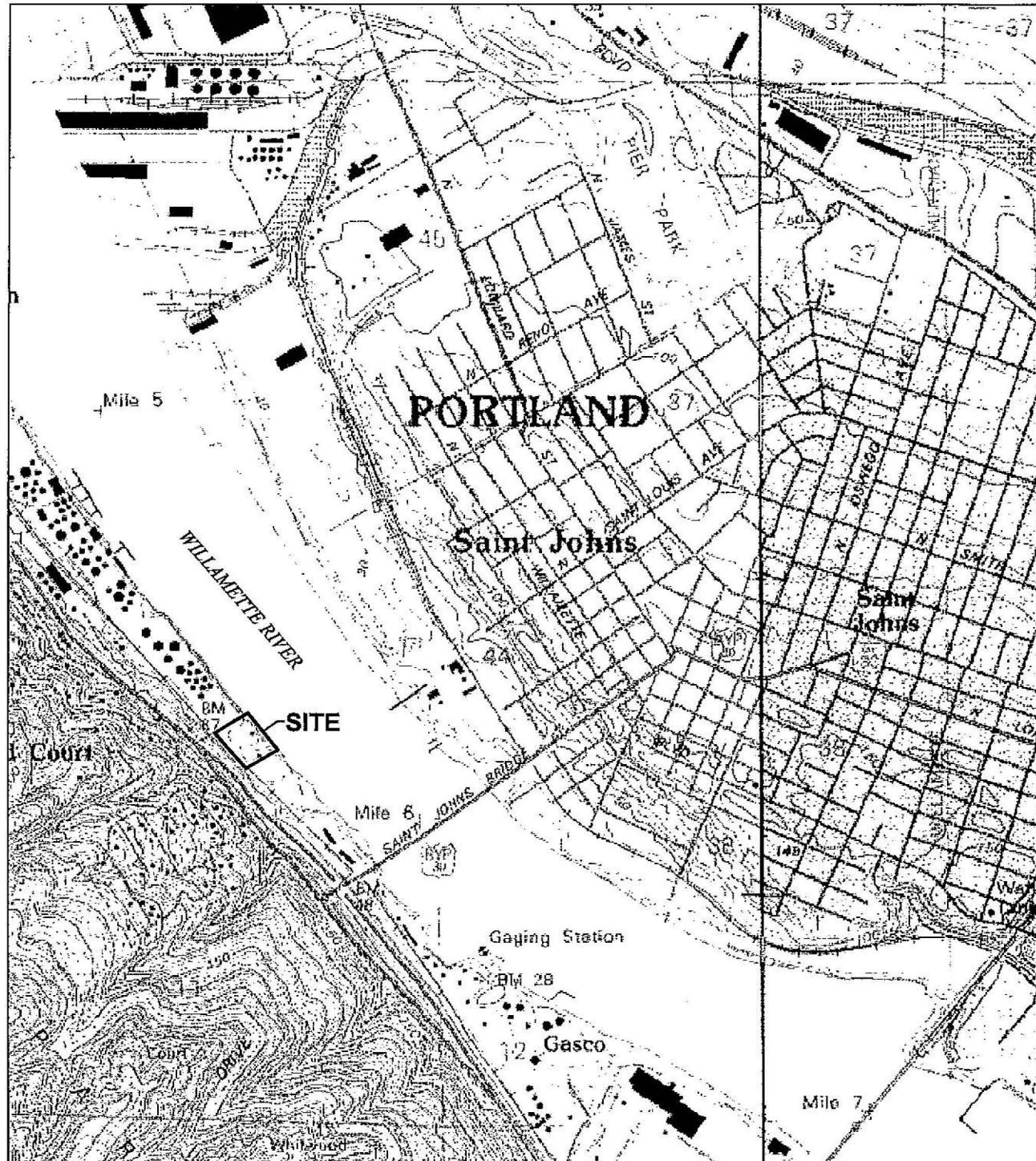
NOTE: Water concentrations are in µg/L. Soil concentrations are in µg/kg. U = not detected at or above the indicated method reporting limit. J = estimated concentration.  
D = the reported result is from a dilution. i = the MRL/MDL has been elevated due to a chromatographic interference.

**Table 4**  
**Volatile Organic Compounds**  
**Brix Maritime**  
**Portland, Oregon**

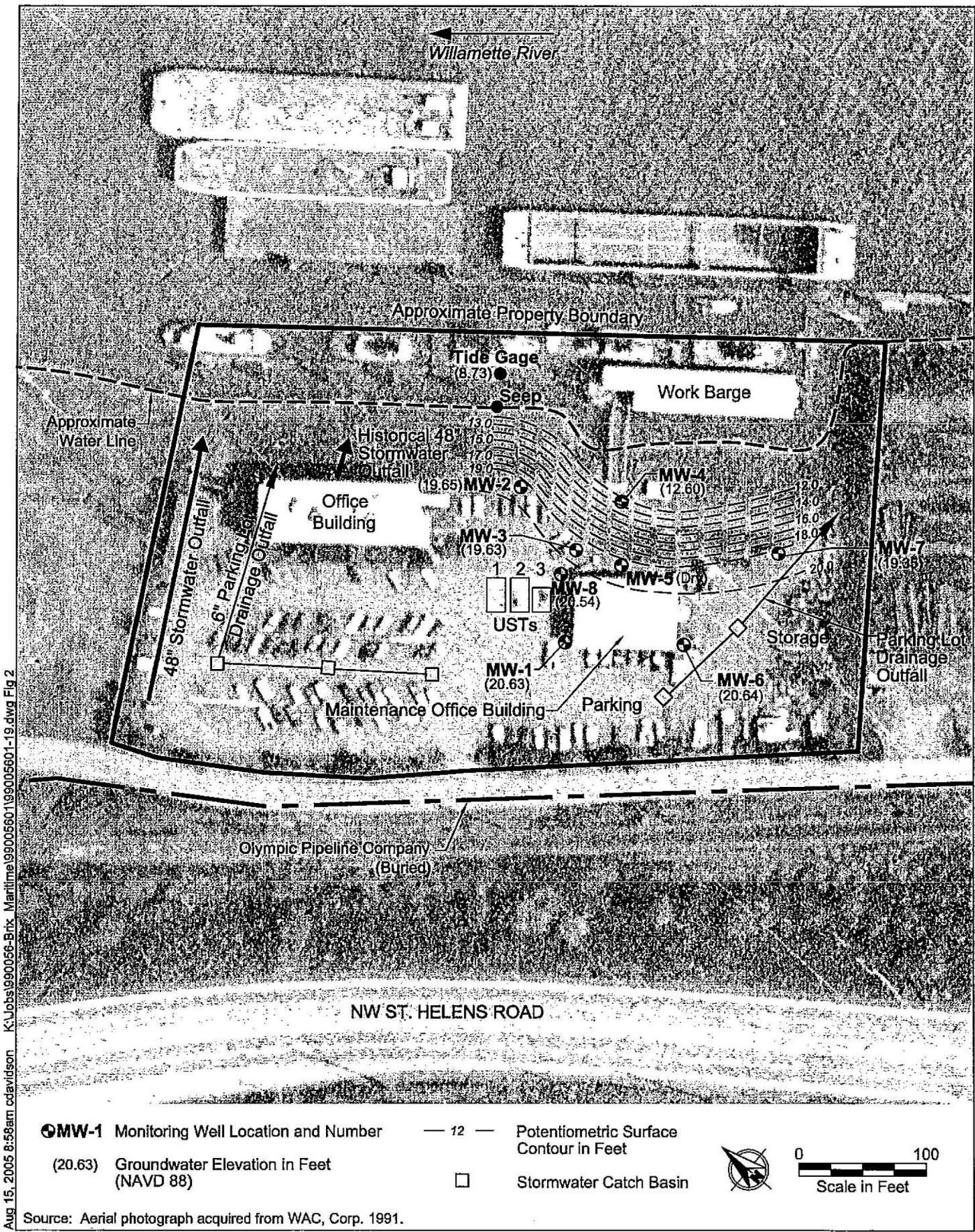
Sample Designation	Matrix	Date Sampled	Isopropylbenzene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Bromobenzene	n-Propylbenzene	2-Chlorotoluene	4-Chlorotoluene	1,3,5-Trimethylbenzene	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	1,3-Dichlorobenzene	4-Isopropyltoluene	1,4-Dichlorobenzene	n-Butylbenzene	1,2-Dichlorobenzene	1,2,4-Trichloropropane	1,2,3-Trichlorobenzene	Naphthalene	Hexachlorobutadiene	
MW-5	Water	02/28/03	24	0.5 U	0.5 U	0.5 U	110 D	2 U	2 U	26	2 U	75 D	27	0.5 U	2 U	0.5 U	87 D	0.5 U	0.5 U	2 U	2 U	23	2 U
MW-5 Dup	Water	02/28/03	25	0.5 U	0.5 U	0.5 U	110 D	2 U	2 U	30	2 U	99 D	30	0.5 U	2.3	0.5 U	110 D	0.5 U	0.5 U	2 U	2 U	25	2 U
MW-5	Water	01/30/04	9.7	0.5 U	0.5 U	0.5 U	49	2 U	2 U	2 U	2 U	2 U	38	0.5 U	2 U	0.5 U	82 D	0.5 U	0.5 U	2 U	2 U	2.9	2 U
MW-5 Dup	Water	01/30/04	11	0.5 U	0.5 U	0.5 U	56	2 U	2 U	2 U	2 U	2 U	39	0.5 U	2 U	0.5 U	84 D	0.5 U	0.5 U	2 U	2 U	3.4	2 U
MW-5	Water	05/05/05	50	0.5 U	0.5 U	2 U	140 D	2 U	2 U	2 U	2 U	2 U	41	0.5 U	2 U	0.5 U	120 UJ	0.5 U	0.5 U	2 U	2 U	8.0	2 U
MW-6	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	10/16/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	01/30/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	04/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	07/26/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	10/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-6	Water	05/05/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	07/07/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	10/16/03	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	01/30/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	04/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	07/26/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	10/29/04	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-7	Water	05/05/05	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U
MW-8	Water	02/25/05	2 U	0.5 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U

NOTE: Water concentrations are in µg/L. Soil concentrations are in µg/kg. U = not detected at or above the indicated method reporting limit. J = estimated concentration.  
D = the reported result is from a dilution. i = the MRL/MDL has been elevated due to a chromatographic interference.

## **FIGURES**



**Figure 1**  
Site Location Map  
Brix Maritime  
Portland, Oregon



**Figure 2**  
Well Location and Potentiometric Surface Map (August 2, 2005)  
Brix Maritime  
Portland, Oregon



**Appendix A**  
**Field Sampling Data Package**



Anchor Environmental, L.L.C.  
6650 SW Redwood Lane, Suite 110  
Portland, OR 97224  
Phone 503.670.1108  
Fax 503.670.1128

## Memorandum

**To:** File 990056-01  
**From:** Kelly R. Titkemeier  
**Date:** August 2, 2005  
**Re:** August 2005 Groundwater Sample Collection at Brix Maritime, Portland, Oregon

### OVERVIEW

On August 2, 2005, Anchor measured groundwater elevations in monitoring wells MW-1 through MW-8 and recorded the elevation of the river from the on-site staff gauge. Groundwater samples were collected from monitoring wells MW-1, MW-3, and MW-4 (MW-5 had insufficient water to sample). Four water samples (including one duplicate sample) were submitted for analysis of VOCs by U.S. Environmental Protection Agency (USEPA) Method 8260; gasoline by NWTPH-Gx; diesel and heavy oils by NWTPH-Dx; and PAHs by USEPA Method 8270-SIM. Trip blanks were submitted for VOC and NWTPH-Gx analyses.

### PURGING AND SAMPLING

Before sampling, wells were purged of at least three casing volumes of groundwater until field parameters (temperature, pH, specific conductivity, and dissolved oxygen) stabilized. Temperature, pH, specific conductivity, and dissolved oxygen values were measured and recorded after each casing volume was removed. Field sampling parameters are presented in the attached table.

Each well was purged using a peristaltic pump and pump tubing that was connected to dedicated polyethylene tubing. As purging for each well finished, pumping rates were reduced and samples were collected directly from the pump tubing.

Quality control consisted of collecting and analyzing one duplicate sample from MW-3. Trip blanks were submitted for VOC analysis by USEPA Method 8260 and gasoline by NWTPH-Gx.

### SAMPLE HANDLING AND SHIPPING

Four samples and two trip blanks were placed in iced shipping containers and transported by courier to Columbia Analytical Services (CAS), Kelso, Washington under chain of custody documentation.

Attachments: Table of Sampling Field Parameters  
Water Level Survey  
Field Sampling Data Sheets  
Chain-of-Custody Documentation

**Table**  
**Sampling Field Parameters**  
**Brix Maritime**  
**August 2005**

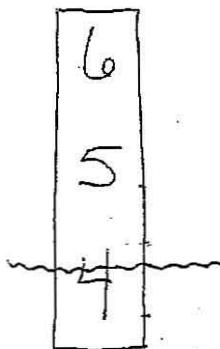
Well	Blind Code	Date Sampled	Depth to Water (feet)	Pore Volumes Purged	Gallons Removed	pH	Specific Conductance $\mu\text{S}$	Temperature $^{\circ}\text{C}$	Dissolved Oxygen mg/L
<b>Monitoring Wells</b>									
MW-1	BM-080205-3	8/2/2005	21.16	3	0.6	5.59	1041	16.03	0.43
MW-3	BM-080205-1	8/2/2005	22.31	4	1.6	5.87	381	16.54	0.52
MW-4	BM-080205-4	8/2/2005	10.92	3	2.1	5.72	389	16.44	0.29
MW-5	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>QA/QC</b>									
MW-3	BM-080205-2	8/2/2005	22.31	4	1.6	5.87	381	16.54	0.52

*Note:* NS = Not Sampled

**Depth to Water Measurements**  
**Brix Maritime**  
**Portland, Oregon**

Anchor Environmental, L.L.C.				Site: Brix Maritime
				Project No. : 990056-01
Well	Date (MM/DD/YY)	Time (2400)	DTW (feet)	Comments
MW-1	8/2/05	0826	21.18	hydrocarbon odor
MW-2	8/2/05	0832	22.48	
MW-3	8/2/05	0839	22.32	DTP = 22.31
MW-4	8/2/05	0922	10.95	rust-colored substance on end of probe
MW-5	8/2/05	0850	22.01	DRY
MW-6	8/2/05	0903	20.57	
MW-7	8/2/05	0909	21.60	rust-colored substance on end of probe
MW-8	8/2/05	0821	21.19	
River Gauge	8/2/05	0938	4.4	

Note: DTW = Depth to Water; DTP = Depth to Product



# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: MW - 1

SITE ADDRESS: Portland, Oregon

BLIND ID: BM-080205-3

WIND FROM:	N	NE	E	SE	S	SW	W	(NW)	LIGHT	MEDIUM	HEAVY	DUP ID: NA
	SUNNY	CLOUDY	RAIN	?					TEMPERATURE: °F 80	°C		

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Circle appropriate unit]

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
8/2/05	11:03	22.24	.	21.16	.	1.08	X 1 0.18
8/2/05	08:26	-	-	21.18	-	-	X 3 0.53
Gal/ft = (dia./2) <sup>2</sup> x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[If used]

Bottle Type	Date	Time	Method	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	
VOA Glass	8/2/05	11:30	B	(6) 40ml	(HCl)	(YES)	(NO)		✓
Amber Glass	8/2/05	11:30	B	(2) 250/500 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	(YES)	(NO)		✓
White Poly	/ /	:	-	250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:	-	250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO		
Green Poly	/ /	:	-	250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:	-	250, 500, 1L	HNO <sub>3</sub>	YES	NO		
Red Diss. Poly	/ /	:	-	250, 500, 1L	HNO <sub>3</sub>	YES	YES		
	/ /	:	-	250, 500, 1L		YES			

Total Bottles (include duplicate count): 8

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA-Glass	(8021) (8260B) (BTEX) (NWTPh-G)								
	AMBER-Glass	(PAH) (TPH-HCID) (NWTPh-P) (TPH-418.1) (Oil & Grease)								
	WHITE-Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW-Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Kjeldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN-Poly	(Cyanide)								
	RED TOTAL-Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED-Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

WATER QUALITY DATA			Purge Start Time: 11 : 04	Pump/Bailer Inlet Depth:				
Meas.	Method	Purged (gal)	pH	E Cond (µS)	°F Temp (°C)	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4			.	.	.	.	.	.
3	B	0.6	5.59	1041	16.03	-585	0.43	clear, colorless
2	B	0.4	5.58	1002	15.99	-567	0.62	clear colorless
1	B	0.2	5.75	860	16.47	-583	1.82	v. slightly cloudy, colorless
0		0.00	.	.	.	.	.	.

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity, Color]

SAMPLER:

Kelly R. Tittkemeier

(PRINTED NAME)

(SIGNATURE)

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: MUJ-3

SITE ADDRESS: Portland, Oregon

BLIND ID: BM-080205-1

DUP ID: BM-080205-2 NA 1025

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?		TEMPERATURE:	78	°C

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Circle appropriate unit]

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
8/12/05	09:52	84.78	—	22.3	—	2.47	X 1 0.40
8/12/05	09:59	—	22.31	22.32	0.01	—	X 3 1.20
Gal/ft = (dia./2) <sup>2</sup> x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[If used]

Bottle Type	Date	Time	Method <sup>s</sup>	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	
VOA Glass	8/12/05	10:20	B	(6) 40 ml	HCl	YES	NO		✓
Amber Glass	8/12/05	10:20	B	(2) 250,500,1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO		✓
White Poly	/ /	:		250,500,1L	None	YES	NO	NA	
Yellow Poly	/ /	:		250,500,1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO		
Green Poly	/ /	:		250,500,1L	NaOH	YES	NO		
Red Total Poly	/ /	:	-1-6	250,500,1L	HNO <sub>3</sub>	YES	NO		
Red Diss. Poly	/ /	:	-1-6	250,500,1L	HNO <sub>3</sub>	YES	YES		
	/ /	:		250,500,1L		YES			

Total Bottles (include duplicate count):

8 (16)

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)							
	VOA - Glass	(8021) (B260B) (BTEx) (NWTPH-G)						
	AMBER - Glass	(PAH) (TPH-HC1D) (NWTPH-Dx) (TPH-418.1) (Oil & Grease)						
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)						
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Keldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )						
	GREEN - Poly	(Cyanide)						
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)						
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)						

## WATER QUALITY DATA

Purge Start Time: 09:59

Pump/Bailer Inlet Depth:

Meas.	Method <sup>s</sup>	Purged (gal)	pH	E Cond (µS)	Temp (°C)	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4	B	1.6	5.87	38	16.54	-81.5	0.52	clear, colorless
3	B	1.2	5.88	381	16.48	-80.3	0.53	clear, colorless
2	B	0.8	5.69	3.81	15.62	-67.6	0.56	clear, colorless
1	B	0.4	5.69	376	15.74	-56.5	0.75	clear, colorless
0		0.00					.	

[Casing]

[Select A-G]

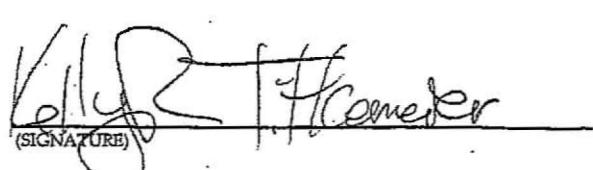
[Cumulative Totals]

[Circle units]

[Clarity, Color]

SAMPLER:

Kelly R. Tikkemeier  
(PRINTED NAME)

  
Kelly R. Tikkemeier  
(SIGNATURE)

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: MW-4

SITE ADDRESS: Portland, Oregon

BLIND ID: BM-080205-4

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?	TEMPERATURE:	°F 85	°C	

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Circle applicable units]  
[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
8/12/05	11:58	14.83		10.92		3.91	X1 0.64
8/12/05	09:22	—		10.95		:	X3 1.91
Gal/ft = (dim./2) <sup>2</sup> x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Baller (D) PVC/Teflon Baller (E) Dedicated Baller (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[if fused]

Bottle Type	Date	Time	Method	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH
VOA Glass	8/12/05	12:45	B	(6) 40 ml	HCl	YES	NO	✓
Amber Glass	8/12/05	12:45	B	(2) 250, 500, 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO	✓
White Poly	/ /	:		250, 500, 1L	None	YES	NO	NA
Yellow Poly	/ /	:		250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO	
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO	
Red Total Poly	/ /	:	-1Ket	250, 500, 1L	HNO <sub>3</sub>	YES	NO	
Red Diss. Poly	/ /	:	-1Ket	250, 500, 1L	HNO <sub>3</sub>	YES	YES	
	/ /	:		250, 500, 1L		YES		

Total Bottles (include duplicate count):

8

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA - Glass	(8021) (8260B) (STEX) (NWTPH-G)								
	AMBER - Glass	(PAH) (TPH-HCl) (NWTPH-Dx) (TPH-418.1) (Oil & Grease)								
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Kjeldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN - Poly	(Cyanide)								
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

## WATER QUALITY DATA

Purge Start Time: 12:00

Pump/Bailer Inlet Depth:

Meas.	Method	Purged (gal)	pH	E Cond (µS)	°F Temp	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4		.	.	.	.	.	.	.
3	B	2.1	5.72	389	16.44	35.0	0.29	clear, colorless
2	B	1.4	5.74	389	16.46	34.8	0.30	clear, colorless
1	B	0.7	5.78	395	16.51	-36.4	0.63	cloudy, It rust-colored, floc-
0		0.00	.	.	.	.	.	

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity, Color]

1/ice

Suspended material  
(rust + white in color)

SAMPLER: Kelly R. Ttkemeier

(Signature)



# **CHAIN OF CUSTODY**

An Employee - Owned Company

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX: (360) 636-1068

SR#:  COC #

PROJECT NAME BRIX MARITIME - PORTLAND, OR					NUMBER OF CONTAINERS	<input type="checkbox"/> Semivolatile Organics by GC/MS <input type="checkbox"/> Volatile Organics by GC/MS <input type="checkbox"/> Hydrocarbons (Gas) 8260 <input type="checkbox"/> Diesel Oil 8261 <input type="checkbox"/> Fuel Fingerprint (FFQ) <input type="checkbox"/> Oil & Grease/TCD Screen <input type="checkbox"/> PCB's 1664 HEM <input type="checkbox"/> Aroclors 1664 SGT <input type="checkbox"/> Pesticides/Herbicides 608 <input type="checkbox"/> Chlorophenolics 8081A <input type="checkbox"/> Tri-PAHs 8141A <input type="checkbox"/> Tetra-PAHs 8151M <input type="checkbox"/> PAHS 8910 PCP <input type="checkbox"/> Congeners 8081A <input type="checkbox"/> Metals Total or Dissolved (See list below) <input type="checkbox"/> Cyanide 8910 SIM (DK) <input type="checkbox"/> pH <input type="checkbox"/> Cond. / TCI <input type="checkbox"/> Hex-Chrom <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NH <sub>3</sub> -N <input type="checkbox"/> BOD, TSS, COD, TDS (circle) <input type="checkbox"/> PO <sub>4</sub> , F, NO <sub>2</sub> <input type="checkbox"/> DOC, Total-P, TOC <input type="checkbox"/> NO <sub>2</sub> +NO <sub>3</sub> <input type="checkbox"/> Tox 9020 AOX 1650 NwTPH - 5x																				REMARKS	
SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX																							
BM-080205-1	8/2/05	1020		H <sub>2</sub> O																							
-2		1025		8																							
-3		1130		8																							
↓ -4		1245		8																							
Trip Blank 4		NA		2																							
Trip Blank 5	↓	NA	↓	2																							
<b>REPORT REQUIREMENTS</b>					<b>INVOICE INFORMATION</b>																						
I. Routine Report: Method Blank, Surrogate, as required	P.O. # _____																										
II. Report Dup., MS, MSD as required	Bill To: _____																										
III. Data Validation Report (includes all raw data)	TURNAROUND REQUIREMENTS																										
IV. CLP Deliverable Report	24 hr.      48 hr. 5 Day ✓ Standard (10-15 working days)																										
V. EDD	Provide FAX Results																										
Circle which metals are to be analyzed:  Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg																											
*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)																											
SPECIAL INSTRUCTIONS/COMMENTS:																											

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature	Date/Time	Signature	Date/Time
Kelly R. Tittkemeier Signature	8/3/05/0800 Date/Time	Kelly R. Tittkemeier Signature	Anchor Env. Date/Time
Printed Name	Firm	Printed Name	Firm



**Depth to Water Measurements**  
**Brix Maritime**  
**Portland, Oregon**

Anchor Environmental, L.L.C.		Site: Brix Maritime		
		Project No.: 990056-01		
Well	Date (MM/DD/YY)	Time (2400)	DTW (feet)	Comments
MW-1	09/29/05	10:59	21.21	No product, Sheen on probe
MW-2		10:40	22.90	
MW-3		10:54	22.37	Sheen on probe, no measurable product
MW-4		10:42	11.19	
MW-5		10:51	22.01	
MW-6		10:48	21.25	
MW-7		10:45	22.47	
MW-8		10:56	21.33	No product, no sheen
River Gauge	✓	11:10	2 1.0	Gauge covered in algae, unreadable.

Note: DTW = Depth to Water; DTP = Depth to Product

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: *Seep*

SITE ADDRESS: Portland, Oregon

BLIND ID: *092905-3*

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY		RAIN		?		TEMPERATURE:	75	°C	

(Circle appropriate units)

[Water Column x Gal/ft]

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
/ /	:	N	A	.	.	.	X1 .
/ /	:	.	.	.	.	.	X3 .

Gal/ft =  $(\text{dia}/2)^2 \times 0.163$  1" = 0.041 2" = 0.163 3" = 0.367 4" = 0.653 6" = 1.469 10" = 4.080 12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[If used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	/ /	:		6 40 ml	HCl	YES	NO		
Amber Glass	9/29/05	11:50	Grab	250, 500, 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO	✓	✓
White Poly	/ /	:		250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:		250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	NO		
Red Diss. Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	YES		
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count):

Analysis Allowed Per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA - Glass	(8021) (8260B) (BTEx) (NWTIPH-G)								
	AMBER - Glass	(PAH) (TPH-HCDD) (NWTIPH-Dx) (TPH-418.1) (Oil & Grease)								
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Kjeldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN - Poly	(Cyanide)								
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

WATER QUALITY DATA			Purge Start Time: :	ORP MV	Pump/Bailer Inlet Depth:			
Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp °C	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4		.	.				.	
3		.	.				.	
2		.	.				.	
1		.	.				.	
0	GRAB	0.00	6.30	47.4	15.79	120.15	1.97	Slightly Cloudy, Brown

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [(Clarity, Color)]

Start collecting at 10:00 AM @ 11:00 AM 1/2 liter @ 11:50 1L

Push stainless steel sheet into slope below seep fill bottle directly from sheet

SAMPLER: JOAN J RENDA  
(PRINTED NAME)

SLJR  
(SIGNATURE)

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: Deep Soil

SITE ADDRESS: Portland, Oregon

BLIND ID:

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY		RAIN		?		TEMPERATURE:	°F 75	°C	

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

(Circle appropriate unit)

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
/ /	:	.	NA	.	.	.	X 1 .
/ /	:	.	NA	.	.	.	X 3 .

Gal/ft =  $(\text{dia}/2)^2 \times 0.163$  1" = 0.041 2" = 0.163 3" = 0.367 4" = 0.653 6" = 1.469 10" = 4.080 12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[If used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	/ /	:		6	40 ml	HCl	YES	NO	
Amber Glass	/ /	:		2	250, 500, 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO	
White Poly	/ /	:			250, 500, 1L	None	YES	NO	NA
Yellow Poly	/ /	:			250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO	
Green Poly	/ /	:			250, 500, 1L	NaOH	YES	NO	
Red Total Poly	/ /	:		1	250, 500, 1L	HNO <sub>3</sub>	YES	NO	
Red Diss. Poly	/ /	:		1	250, 500, 1L	HNO <sub>3</sub>	YES	YES	
Soil Jar	9/29/05	12:00	Grnd	2	250, 500, 1L	None	YES	No	- ✓

Total Bottles (include duplicate count):

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA - Glass	(8021) (8260B) (BTEx) (NWTPH-G)								
	AMBER - Glass	(PAH) (TPH-HCD) (NWTPH-Dx) (TPH-418.1) (Oil & Grease)								
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Kjeldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN - Poly	(Cyanide)								
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

## WATER QUALITY DATA

Purge Start Time: : Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp	°C	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4		.	.		.	.		.	
3		.	.		.	.		.	
2		.	.		.	.		.	
1		.	.		.	.		.	
0		0.00	.		.	.		.	

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity, Color]

BM-092905-4 12:00 Surface soil at seep,  
BM-092905-5 12:00 Soil at seep at 0.5' depth

SAMPLER: JOHN J RENDA  
(PRINTED NAME)

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: River

SITE ADDRESS: Portland, Oregon

BLIND ID: 092905-2

DUP ID: NA

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY		RAIN		?		TEMPERATURE:	°F 75.	°C	

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DIB-DTW	Volume (gal)
/ /	:	N/A		.	.	.	X 1 .
/ /	:			.	.	.	X 3 .

Gal/ft =  $(\text{dia}/2)^2 \times 0.163$     1" = 0.041    2" = 0.163    3" = 0.367    4" = 0.653    6" = 1.469    10" = 4.080    12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	/ /	:		6 40 ml	HCl	YES	NO		
Amber Glass	9/29/05	11:45	GRAB	250, 500, 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO		✓
White Poly	/ /	:		250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:		250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	NO		
Red Diss. Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	YES		
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 1

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA - Glass	(8021) (8260B) (BTEX) (NWTPH-G)								
	AMBER - Glass	(PAH) (TPH-HCID) (NWTPH-Dx) (TPH-418.1) (Oil & Grease)								
	WHITE - Poly	(Ge) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Keldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN - Poly	(Cyanide)								
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

## WATER QUALITY DATA

Purge Start Time: :

08/

Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	°F Temp (°C)	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4								
3								
2								
1				99				
0	GRAB	0.00	7.62	99	16.76 84.1	11.72	Slightly Cloudy, Colorless	

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity, Color]

Dip bottle into river at dock next to gauge.

SAMPLER: Shawn Renda  
(PRINTED NAME)

Shawn Renda  
(SIGNATURE)

# FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: Brix Maritime

WELL ID: MW-2

SITE ADDRESS: Portland, Oregon

BLIND ID: 092905-1

DUP ID: NA

WIND FROM:	N	NE	E	(SE)	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY		RAIN		?		TEMPERATURES	°F 75	°C	

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
9/29/05	10:40	24.25		22.90		1.35	X1 0.22
/ /	:			.	.	.	X3 0.66
Gal/ft = (dia./2) <sup>2</sup> x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth: [if used]

Bottle Type	Date	Time	Method	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	9/29/05	:		6 40 ml	HCl	YES	NO		
Amber Glass	9/29/05	11:30	B	250, 500, 1L	(None) (HCl) (H <sub>2</sub> SO <sub>4</sub> )	YES	NO		✓
White-Poly	/ /	:		250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:		250, 500, 1L	H <sub>2</sub> SO <sub>4</sub>	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	NO		
Red Diss. Poly	/ /	:		250, 500, 1L	HNO <sub>3</sub>	YES	YES		
	/ /	:		250, 500, 1L		YES			
Total Bottles (include duplicate count):				1					

Analysis Allowed per Bottle Type	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)									
	VOA - Glass	(8021) (8260B) (BTEX) (NWTPH-G)								
	AMBER - Glass	(PAH) (TPH-HCD) (NWTPH-Dx) (TPH-418.1) (Oil & Grease)								
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F)								
	YELLOW - Poly	(COD) (TOC) (Total PO <sub>4</sub> ) (Total Keldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )								
	GREEN - Poly	(Cyanide)								
	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)								
	RED DISSOLVED - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)								

## WATER QUALITY DATA

Purge Start Time: :

ORP

Pump/Bailer Inlet Depth:

Meas.	Method	Purged (gal)	pH	E Cond (µS)	°F Temp	°C	Other	Diss O <sub>2</sub> (mg/l)	Water Quality
4	F <sub>2</sub>	1.3	6.03	636	16.27	42.2		1.83	Clear, Colorless
3	B	1.0	6.05	630	16.27	46.6		2.06	Slightly Cloudy, Clear
2	B	.6	6.04	651	16.30	48.5		4.57	Cloudy, H brown
1	B	.3	6.30	669	16.84	49.2		5.36	Cloudy, H brown
0		0.00							

[Casing]

[Select A-G]

[Cumulative Totals]

[Circle units]

[Clarity, Color]

SAMPLER:

John J Renda

(PRINTED NAME)

RJR  
(SIGNATURE)



An Employee - Owned Company

## CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#:

PAGE

OF

COC #

PROJECT NAME <b>Brix Maritime</b>					NUMBER OF CONTAINERS														
PROJECT NUMBER <b>990056-01</b>																			
PROJECT MANAGER <b>John RENDA</b>																			
COMPANY/ADDRESS <b>Anchor Environmental</b> 6650 SW Bidwell Lane Suite 110 Portland, OR 97224																			
CITY/STATE/ZIP <b>Portland, OR 97224</b>																			
E-MAIL ADDRESS <b>JREND@Anchorenv.com</b>																			
PHONE # <b>503-670-1108 x12</b> FAX# <b>503-670-1123</b>																			
SAMPLER'S SIGNATURE 																			
SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX															
BM-092905-1	9/29/05	1130	H <sub>2</sub> O																
-2	1	1145			<input checked="" type="checkbox"/> Semivolatile Organics by GC/MS														
-3	1	1150			<input checked="" type="checkbox"/> 8270														
-4	1	1200	Soil		<input checked="" type="checkbox"/> 8280														
-5	1	1205			<input checked="" type="checkbox"/> 8021														
					<input type="checkbox"/> BTEX														
					<input type="checkbox"/> Diesel														
					<input type="checkbox"/> Fuel Fingerprint (FFQ)														
					<input type="checkbox"/> Oil & Grease/TOC Screen														
					<input type="checkbox"/> 1664 HEM/TPH														
					<input type="checkbox"/> PCB's														
					<input type="checkbox"/> Aroclors														
					<input type="checkbox"/> Pesticides/Herbicides														
					<input type="checkbox"/> 608														
					<input type="checkbox"/> Congeners														
					<input type="checkbox"/> 8081A														
					<input type="checkbox"/> Chlorophenolics														
					<input type="checkbox"/> Tri														
					<input type="checkbox"/> PAHS														
					<input type="checkbox"/> 8310														
					<input type="checkbox"/> SIM														
					<input type="checkbox"/> Metals, Total or Dissolved (See list below)														
					<input type="checkbox"/> Cyanide														
					<input type="checkbox"/> pH, Cond., Cl, SO <sub>4</sub> , PO <sub>4</sub> , F, NO <sub>2</sub> , NH <sub>3</sub> -N, COD, TDS, DOC (circle) NO <sub>2</sub> +NO <sub>3</sub> , TOX 9020*														
					<input type="checkbox"/> Hex-Chrom														
					<input type="checkbox"/> Mn, Mo, Ni, K, Ag, Na, Se, Sr, Ti, Sn, V, Zn, Hg														
					<input type="checkbox"/> TKN, TOC														
					<input type="checkbox"/> AOX 1650														
					<input type="checkbox"/> 506														
REMARKS																			

REPORT REQUIREMENTS		INVOICE INFORMATION		Circle which metals are to be analyzed:														
<input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required		P.O. # _____		Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg														
<input checked="" type="checkbox"/> II. Report Dup., MS, MSD as required		Bill To: _____		Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg														
<input type="checkbox"/> III. Data Validation Report (includes all raw data)				*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)														
<input type="checkbox"/> IV. CLP Deliverable Report																		
<input type="checkbox"/> V. EDD																		
TURNAROUND REQUIREMENTS		SPECIAL INSTRUCTIONS/COMMENTS:																
24 hr.      48 hr. 5 Day																		
<input checked="" type="checkbox"/> Standard (10-15 working days)																		
Provide FAX Results																		
Requested Report Date																		

RELINQUISHED BY:  Signature Date/Time Printed Name Firm	RECEIVED BY: Signature Date/Time Printed Name Firm	RELINQUISHED BY: Signature Date/Time Printed Name Firm	RECEIVED BY: Signature Date/Time Printed Name Firm
--	--	--	--

RCOC #1 06/03

## **Appendix B**

### **Laboratory Report**

August 25, 2005

Service Request No: K0502672

John Renda  
Anchor Environmental  
6650 SW Redwood Lane  
Suite 110  
Portland, OR 97224

**RE: BRIX Maritime-Portland, OR/990056-01**

Dear John:

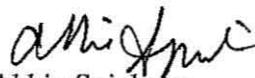
Enclosed are the results of the sample(s) submitted to our laboratory on August 3, 2005. For your reference, these analyses have been assigned our service request number K0502672.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Abbie Spielman  
Project Chemist

AS/jeb

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## Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

### Inorganic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

### Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- \* The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

### Organic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

### Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

# **Case Narrative**

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Anchor Environmental Service Request No.: K0502672  
Project: BRIX Maritime Date Received: 8/3/05  
Sample Matrix: Water

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

**Sample Receipt**

Six water samples were received for analysis at Columbia Analytical Services on 8/3/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Diesel Range Organics by NWTPH-Dx**

No anomalies associated with the analysis of these samples were observed.

**Gasoline Range Organics by NWTPH-Gx**

**Elevated Method Reporting Limits:**

Sample BM-080205-3 required dilution due to elevated levels of Gasoline Range Organics. The reporting limits are adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

**Volatile Organic Compounds by EPA Method 8260B**

**Elevated Method Reporting Limits:**

Sample BM-080205-3 required dilutions due to elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

**Surrogate Exceptions:**

The control criteria were exceeded for the following surrogates in MS KWG0513699-1, DMS KWG0513699-2, and LCS KWG0513699-3: Toluene-d8. The associated matrix spike recoveries of target compounds were in control, indicating the analysis was in control. The surrogate outlier is flagged accordingly. No further corrective action was appropriate.

**Initial Calibration Exceptions:**

The primary evaluation criterion was exceeded for the following analytes in Initial Calibration (ICAL) ID CAL4664: Chloromethane, Methylene Chloride, 2,2-Dichloropropane, 2-Butanone (MEK), Carbon Tetrachloride, Bromodichloromethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 4-Methyl-2-pentanone (MIBK), 2-Hexanone, Dibromochloromethane, 1,1,1,2-Tetrachloroethane, Bromoform, and 1,2-Dibromo-3-chloropropane. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 10.5%. The calibration meets the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

Approved by

*[Signature]*

Date

*8/3/05*

No other anomalies associated with the analysis of these samples were observed.

**Polynuclear Aromatic Hydrocarbons by EPA Method 8270C**

**Elevated Method Reporting Limits:**

Sample BM-080205-3 required dilutions due to elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

**Lab Control Sample Exceptions:**

The control criterion was exceeded for the following analytes in Laboratory Control Sample (LCS) KWG0513282-3: Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene. The problem indicates a potential bias for results reported from this analytical batch. Reanalysis was not performed because insufficient sample remained for additional testing. The data is flagged to indicate the problem.

No other anomalies associated with the analysis of these samples were observed.

Approved by

*Aldo Spurz*

Date

*8/19/05*

# **Chain of Custody Documentation**



An Employee - Owned Company

## CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR# K0502672PAGE 1 OF 1 COC # 

PROJECT NAME		PROJECT NUMBER		PROJECT MANAGER		COMPANY/ADDRESS		CITY/STATE/ZIP		E-MAIL ADDRESS		PHONE #		SAMPLES SIGNATURE		NUMBER OF CONTAINERS	TESTS REQUESTED																		REMARKS	
BRIX MARITIME - PORTLAND, OR		990056-01		JOHN RENDA		6650 SW REDWOOD LANE SUITE 110		PORTLAND, OR 97224		JRENDA@ANCHORENV.COM		503-670-1108 FAX# 503-670-1128		Kelly R. Titkemeyer		Semi-volatile Organics by GC/MS	Volatile Organics 8270	Hydrocarbons (Gas)	BTEX	Diesel	Fuel Fingerprint (FiQ)	NW-HCID Screen	Oil & Grease/TRPH	PCBs	Aroclors	Pesticides/Herbicides	Congeners	Chlorophenolics - 8151M	Tetra	PAHs	Metals, Total or Dissolved (See list below)	Cyanide	Hex-Chrom	pH, Cond., Cl, SO <sub>4</sub> , PO <sub>4</sub> , F, NO <sub>2</sub> , DOC (circle), Total-P, TKN, TOC, TOX 9020	NO <sub>3</sub> , BOD, TSS, TDS (circle), NO <sub>2</sub> +NO <sub>3</sub> , AOX 1650	NwTPH - Gx
BM-080205-1	8/2/05	1020	1	H <sub>2</sub> O	8			X	X																											
-2		1025	2		8			X	X																											
-3		1130	3		8			X	X																											
↓ -4		1245	4		8			X	X																											
Trip Blank 4		NA	5		2			X																												
Trip Blank 5	↓	NA	6	↓	2																									X						

REPORT REQUIREMENTS		INVOICE INFORMATION		Circle which metals are to be analyzed:																							
<input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input checked="" type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. Data Validation Report (Includes all raw data) <input type="checkbox"/> IV. CLP Deliverable Report <input type="checkbox"/> V. EDD		P.O. # _____ Bill To: _____		Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)																							
TURNAROUND REQUIREMENTS		24 hr.      48 hr. 5 Day <input checked="" type="checkbox"/> Standard (10-15 working days) Provide FAX Results		SPECIAL INSTRUCTIONS/COMMENTS:																							
		Requested Report Date																									

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Kelly R. Titkemeyer 8/3/05/0300 Signature _____ Date/Time _____ Printed Name _____ Firm _____	Sean Flanagan 8/3/05 1300 Signature _____ Date/Time _____ Printed Name _____ Firm _____	Signature _____ Date/Time _____ Printed Name _____ Firm _____	Signature _____ Date/Time _____ Printed Name _____ Firm _____

Columbia Analytical Services Inc.  
Cooler Receipt and Preservation Form

PC AS

Project/Client Anchor

Work Order K05

Cooler received on 8-3-05

and opened on 8-3-05

by BD 02672

1. Were custody seals on outside of coolers?

If yes, how many and where? 3 Front

Y  N

2. Were custody seals intact?

Y  N

3. Were signature and date present on the custody seals?

Y  N

4. Is the shipper's airbill available and filed? If no, record airbill number: CAS Courier

Y  N

5. COC#

Temperature of cooler(s) upon receipt: ( $^{\circ}$ C)

0.3

Temperature Blank: ( $^{\circ}$ C)

1.1

Were samples hand delivered on the same day as collection?

Y  N

6. Were custody papers properly filled out (ink, signed, etc.)?

Y  N

7. Type of packing material present ICE, Styrofoam insert, mesh sleeves

8. Did all bottles arrive in good condition (unbroken)?

Y  N

9. Were all bottle labels complete (i.e analysis, preservation, etc.)?

Y  N

10. Did all bottle labels and tags agree with custody papers?

Y  N

11. Were the correct types of bottles used for the tests indicated?

Y  N

12. Were all of the preserved bottles received at the lab with the appropriate pH?

Y  N

13. Were VOA vials checked for absence of air bubbles, and if present, noted below?

Y  N

14. Did the bottles originate from CAS/K or a branch laboratory?

Y  N

15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?

Y  N

16. Was Cl2/Res negative?

Y  N

Explain any discrepancies:

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RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

## **Diesel & Residual Range Organics**

# **Organic Analysis: Diesel and Residual Range Organics**

## **Summary Package**

### **Sample and QC Results**

Client: Anchor Environmental  
 Project: BRIX Maritime-Portland, OR/990056-01

Service Request: K0502672

**Cover Page - Organic Analysis Data Package  
 Diesel and Residual Range Organics**

Sample Name	Lab Code	Date Collected	Date Received
BM-080205-1	K0502672-001	08/02/2005	08/03/2005
BM-080205-2	K0502672-002	08/02/2005	08/03/2005
BM-080205-3	K0502672-003	08/02/2005	08/03/2005
BM-080205-4	K0502672-004	08/02/2005	08/03/2005

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Christina Quinn

Name: CHRISTINA QUINN

Date: 08/05

Title: SCIENTIST

**COLUMBIA ANALYTICAL SERVICES, INC.**

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

**Diesel and Residual Range Organics**

**Sample Name:** BM-080205-1  
**Lab Code:** K0502672-001

**Units:** ug/L  
**Basis:** NA

**Extraction Method:** EPA 3510C  
**Analysis Method:** NWTPH-Dx

**Level:** Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1200	Y	270	1	08/05/05	08/09/05	KWG0513133	
Residual Range Organics (RRO)	4000	O	540	1	08/05/05	08/09/05	KWG0513133	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	95	50-150	08/09/05	Acceptable
n-Triacontane	101	50-150	08/09/05	Acceptable

Comments: \_\_\_\_\_

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Diesel and Residual Range Organics

<b>Sample Name:</b>	BM-080205-2	<b>Units:</b>	ug/L
<b>Lab Code:</b>	K0502672-002	<b>Basis:</b>	NA
<b>Extraction Method:</b>	EPA 3510C	<b>Level:</b>	Low
<b>Analysis Method:</b>	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1100	Z	260	1	08/05/05	08/12/05	KWG0513133	
Residual Range Organics (RRO)	1700	O	520	1	08/05/05	08/12/05	KWG0513133	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	94	50-150	08/12/05	Acceptable
n-Triacontane	95	50-150	08/12/05	Acceptable

**Comments:** \_\_\_\_\_

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Diesel and Residual Range Organics

**Sample Name:** BM-080205-3      **Units:** ug/L  
**Lab Code:** K0502672-003      **Basis:** NA  
**Extraction Method:** EPA 3510C      **Level:** Low  
**Analysis Method:** NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1000 L	260	1	08/05/05	08/09/05	KWG0513133	
Residual Range Organics (RRO)	ND U	520	1	08/05/05	08/09/05	KWG0513133	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	85	50-150	08/09/05	Acceptable
n-Triacontane	89	50-150	08/09/05	Acceptable

Comments: \_\_\_\_\_

COLUMBIA ANALYTICAL SERVICES, INC.

### Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Diesel and Residual Range Organics

**Sample Name:** BM-080205-4      **Units:** ug/L  
**Lab Code:** K0502672-004      **Basis:** NA  
**Extraction Method:** EPA 3510C      **Level:** Low  
**Analysis Method:** NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	280	1	08/05/05	08/09/05	KWG0513133	
Residual Range Organics (RRO)	ND	U	550	1	08/05/05	08/09/05	KWG0513133	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	102	50-150	08/09/05	Acceptable
n-Triacontane	107	50-150	08/09/05	Acceptable

**Comments:**

**COLUMBIA ANALYTICAL SERVICES, INC.**

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** NA  
**Date Received:** NA

**Diesel and Residual Range Organics**

**Sample Name:** Method Blank      **Units:** ug/L  
**Lab Code:** KWG0513133-4      **Basis:** NA  
**Extraction Method:** EPA 3510C      **Level:** Low  
**Analysis Method:** NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	250	1	08/05/05	08/09/05	KWG0513133	
Residual Range Organics (RRO)	ND	U	500	1	08/05/05	08/09/05	KWG0513133	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	100	50-150	08/09/05	Acceptable
n-Triacontane	104	50-150	08/09/05	Acceptable

**Comments:** \_\_\_\_\_

**COLUMBIA ANALYTICAL SERVICES, INC.**

## QA/QC Report

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672**Surrogate Recovery Summary  
Diesel and Residual Range Organics**

**Extraction Method:** EPA 3510C  
**Analysis Method:** NWTPH-Dx

**Units:** PERCENT  
**Level:** Low

<b>Sample Name</b>	<b>Lab Code</b>	<b>Sur1</b>	<b>Sur2</b>
BM-080205-1	K0502672-001	95	101
BM-080205-2	K0502672-002	94	95
BM-080205-3	K0502672-003	85	89
BM-080205-4	K0502672-004	102	107
Batch QCDUP	KWG0513133-1	107	111
Method Blank	KWG0513133-4	100	104
Batch QC	K0502635-001	108	114
Lab Control Sample	KWG0513133-2	109	113
Duplicate Lab Control Sample	KWG0513133-3	101	106

**Surrogate Recovery Control Limits (%)**

Sur1 = o-Terphenyl                    50-150  
Sur2 = n-Triaccontane                50-150

Results flagged with an asterisk (\*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

**COLUMBIA ANALYTICAL SERVICES, INC.**

## QA/QC Report

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Extracted:** 08/05/2005  
**Date Analyzed:** 08/09/2005

**Duplicate Sample Summary**  
**Diesel and Residual Range Organics**

<b>Sample Name:</b>	Batch QC	<b>Units:</b>	ug/L
<b>Lab Code:</b>	K0502635-001	<b>Basis:</b>	NA
<b>Extraction Method:</b>	EPA 3510C	<b>Level:</b>	Low
<b>Analysis Method:</b>	NWTPH-Dx	<b>Extraction Lot:</b>	KWG0513133

<b>Analyte Name</b>	<b>MRL</b>	<b>Sample Result</b>	<b>Batch QCDUP</b> KWG0513133-1		<b>Relative Percent Difference</b>	<b>RPD Limit</b>
			<b>Duplicate Sample Result</b>	<b>Average</b>		
Diesel Range Organics (DRO)	280	ND	ND	ND	-	30
Residual Range Organics (RRO)	550	ND	ND	ND	-	30

Results flagged with an asterisk (\*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

## QA/QC Report

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Extracted:** 08/05/2005  
**Date Analyzed:** 08/09/2005

## **Lab Control Spike/Duplicate Lab Control Spike Summary Diesel and Residual Range Organics**

**Extraction Method:** EPA 3510C      **Analysis Method:** NWTPH-Dx      **Units:** ug/L  
**Basis:** NA      **Level:** Low  
**Extraction Lot:** KWG0513133

Analyte Name	Lab Control Sample KWG0513133-2			Duplicate Lab Control Sample KWG0513133-3			%Rec Limits	RPD Limit		
	Lab Control Spike			Duplicate Lab Control Spike						
	Result	Expected	%Rec	Result	Expected	%Rec				
Diesel Range Organics (DRO)	1750	1600	110	1590	1600	99	56-162	10	30	
Residual Range Organics (RRO)	853	800	107	783	800	98	53-143	9	30	

Results flagged with an asterisk (\*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



## **Gasoline Range Organics**



## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

**Gasoline Range Organics**

**Sample Name:** BM-080205-1      **Units:** ug/L  
**Lab Code:** K0502672-001      **Basis:** NA  
**Extraction Method:** EPA 5030B      **Level:** Low  
**Analysis Method:** NWTPH-Gx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/10/05	08/10/05	KWG0513502	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	100	50-150	08/10/05	Acceptable

Comments: \_\_\_\_\_

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Gasoline Range Organics

**Sample Name:** BM-080205-2      **Units:** ug/L  
**Lab Code:** K0502672-002      **Basis:** NA  
**Extraction Method:** EPA 5030B      **Level:** Low  
**Analysis Method:** NWTPH-Gx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/10/05	08/10/05	KWG0513502	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	100	50-150	08/10/05	Acceptable

Comments: \_\_\_\_\_

COLUMBIA ANALYTICAL SERVICES, INC.

### Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Gasoline Range Organics

**Sample Name:** BM-080205-3      **Units:** ug/L  
**Lab Code:** K0502672-003      **Basis:** NA  
**Extraction Method:** EPA 5030B      **Level:** Low  
**Analysis Method:** NWTPH-Gx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	14000	DY	2500	10	08/12/05	08/12/05	KWG0513666	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	08/10/05	Acceptable

**Comments:**

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Gasoline Range Organics

**Sample Name:** BM-080205-4  
**Lab Code:** K0502672-004

**Units:** ug/L  
**Basis:** NA

**Extraction Method:** EPA 5030B  
**Analysis Method:** NWTPH-Gx

**Level:** Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/12/05	08/12/05	KWG0513666	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	111	50-150	08/12/05	Acceptable

Comments: \_\_\_\_\_

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** 08/02/2005  
**Date Received:** 08/03/2005

## Gasoline Range Organics

**Sample Name:** Trip Blank 5 **Units:** ug/L  
**Lab Code:** K0502672-006 **Basis:** NA  
**Extraction Method:** EPA 5030B **Level:** Low  
**Analysis Method:** NWTPH-Gx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND U	250	1	08/10/05	08/10/05	KWG0513502	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	08/10/05	Acceptable

Comments: \_\_\_\_\_

**COLUMBIA ANALYTICAL SERVICES, INC.**

## Analytical Results

**Client:** Anchor Environmental  
**Project:** BRIX Maritime-Portland, OR/990056-01  
**Sample Matrix:** Water

**Service Request:** K0502672  
**Date Collected:** NA  
**Date Received:** NA

**Gasoline Range Organics**

**Sample Name:** Method Blank      **Units:** ug/L  
**Lab Code:** KWG0513502-3      **Basis:** NA  
**Extraction Method:** EPA 5030B      **Level:** Low  
**Analysis Method:** NWTPH-Gx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND - U	250	1	08/10/05	08/10/05	KWG0513502	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	104	50-150	08/10/05	Acceptable

Comments: \_\_\_\_\_